U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

Sundry Print Report

10/20/2023

Well Name: JAMES RANCH UNIT DI 7 SAWTOOTH

Well Location: T23S / R31E / SEC 6 / LOT 1 / 32.340174 / -103.809752

County or Parish/State: EDDY / NM

Well Number: 903H

Type of Well: OIL WELL

Allottee or Tribe Name:

Lease Number: NMNM02887A

Unit or CA Name: JAMES RANCH, JAMES RANCH UNIT

Unit or CA Number: NMNM070965Z, NMNM70965X

US Well Number: 3001550090

Well Status: Approved Application for Permit to Drill

Operator: XTO PERMIAN OPERATING LLC

Notice of Intent

Sundry ID: 2753454

Type of Submission: Notice of Intent

Type of Action: APD Change

Date Sundry Submitted: 09/26/2023

Time Sundry Submitted: 02:31

Date proposed operation will begin: 11/01/2023

Procedure Description: ** Surface hole Change, First and Last Take Point Changes, Bottomhole Location Change, Drilling Plan Change, Casing/Cement Change XTO Permian Operating, LCC. requests permission to make the following changes to the original APD: No Additional Surface Disturbance SHL: fr/210’FNL & 400’F FEL to 155’FNL & 380’FEL, NMNM02887A FTP: fr/1000’FNL & 2310’FEL to 330’FNL & 1870’FWL, NMNM0281482A PPP #1: 1319’ FNL & 1869’ FWL, NMNM081953 LTP: fr/2440’FNL & 2310’FEL to 2540’FNL & 1870’FWL, NMNM071988B BHL: fr/2490’FNL & 2310’FEL to 2590’FNL & 1870’FWL, Section 17-T23S-R31E NMNM071988B Additionally, XTO Permian Operating, LLC. respectfully requests permission to change from a three-string design to a four-string design. The surface, intermediate and production hole, casing, and cement based on the attached drilling program. Due to the design change in these strings, the wellhead configuration has also changed based on the attached drilling program. Casing/Cement design per the attached drilling program. Attachments: C102 Drilling Program MBS Directional Plan OLCV Spud BOP BTV Cement Variance

NOI Attachments

Procedure Description

JRU_7_Sawtooth_903H__Sundry_Attachments_20230926143100.pdf

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Conditions of Approval

Additional

Sec_06_23S_31E_NMP_Sundry_2753454_James_Ranch_Unit_DI_7_Sawtooth_903H_Eng_Worksheet_20231017103509.pdf

Sec_06_23S_31E_NMP_Sundry_2753454_James_Ranch_Unit_DI_7_Sawtooth_903H_COAs_20231017103509.pdf

Operator

I certify that the foregoing is true and correct. Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction. Electronic submission of Sundry Notices through this system satisfies regulations requiring a

Operator Electronic Signature: CASSIE EVANS

Signed on: OCT 19, 2023 03:08 PM

Name: XTO PERMIAN OPERATING LLC

Title: Regulatory Analyst

Street Address: 6401 Holiday Hill Road, Bldg 5

City: Midland **State:** TX

Phone: (432) 218-3671

Email address: CASSIE.EVANS@EXXONMOBIL.COM

Field

Representative Name:

Street Address:

City: **State:** **Zip:**

Phone:

Email address:

BLM Point of Contact

BLM POC Name: CHRISTOPHER WALLS

BLM POC Title: Petroleum Engineer

BLM POC Phone: 5752342234

BLM POC Email Address: cwalls@blm.gov

Disposition: Approved

Disposition Date: 10/20/2023

Signature: Chris Walls

Form 3160-5
(June 2019)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0137
Expires: October 31, 2021

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE *- Other instructions on page 2*

5. Lease Serial No. NMNM02887A

6. If Indian, Allottee or Tribe Name

7. If Unit of CA/Agreement, Name and/or No. JAMES RANCH, JAMES RANCH UNIT/NMNM070965Z,

1. Type of Well
☑ Oil Well ☐ Gas Well ☐ Other

8. Well Name and No. JAMES RANCH UNIT DI 7 SAWTOC

2. Name of Operator XTO PERMIAN OPERATING LLC

9. API Well No. 3001550090

3a. Address 6401 HOLIDAY HILL ROAD BLDG 5, MIDLAND,

3b. Phone No. *(include area code)* (432) 683-2277

10. Field and Pool or Exploratory Area Purple Sage/WOLFCAMP SOUTH

4. Location of Well *(Footage, Sec., T.,R.,M., or Survey Description)* SEC 6/T23S/R31E/NMP

11. Country or Parish, State EDDY/NM

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☑ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
	☐ Alter Casing	☐ Hydraulic Fracturing	☐ Reclamation	☐ Well Integrity
☐ Subsequent Report	☐ Casing Repair	☐ New Construction	☐ Recomplete	☐ Other
	☑ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
☐ Final Abandonment Notice	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be perfonned or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has detennined that the site is ready for final inspection.)

** Surface hole Change, First and Last Take Point Changes, Bottomhole Location Change, Drilling Plan Change, Casing/Cement Change

XTO Permian Operating, LCC. requests permission to make the following changes to the original APD:

No Additional Surface Disturbance

SHL: fr/210FNL & 400F FEL to 155FNL & 380FEL, NMNM02887A

FTP: fr/1000FNL & 2310FEL to 330FNL & 1870FWL, NMNM0281482A

PPP #1: 1319 FNL & 1869 FWL, NMNM081953

Continued on page 3 additional information

14. I hereby certify that the foregoing is true and correct. Name *(Printed/Typed)* CASSIE EVANS / Ph: (432) 218-3671

Title Regulatory Analyst

Signature (Electronic Submission)

Date 10/19/2023

THE SPACE FOR FEDERAL OR STATE OFICE USE

Approved by CHRISTOPHER WALLS / Ph: (575) 234-2234 / Approved

Title Petroleum Engineer

Date 10/20/2023

Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Office CARLSBAD

Title 18 U.S.C Section 1001 and Title 43 U.S.C Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Instructions on page 2)

GENERAL INSTRUCTIONS

This form is designed for submitting proposals to perform certain well operations and reports of such operations when completed as indicated on Federal and Indian lands pursuant to applicable Federal law and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local area or regional procedures and practices, are either shown below, will be issued by or may be obtained from the local Federal office.

SPECIFIC INSTRUCTIONS

Item 4 - Locations on Federal or Indian land should be described in accordance with Federal requirements. Consult the local Federal office for specific instructions.

Item 13: Proposals to abandon a well and subsequent reports of abandonment should include such special information as is required by the local Federal office. In addition, such proposals and reports should include reasons for the abandonment; data on any former or present productive zones or other zones with present significant fluid contents not sealed off by cement or otherwise; depths (top and bottom) and method of placement of cement plugs; mud or other material placed below, between and above plugs; amount, size, method of parting of any casing, liner or tubing pulled and the depth to the top of any tubing left in the hole; method of closing top of well and date well site conditioned for final inspection looking for approval of the abandonment. If the proposal will involve **hydraulic fracturing operations**, you must comply with 43 CFR 3162.3-3, including providing information about the protection of usable water. Operators should provide the best available information about all formations containing water and their depths. This information could include data and interpretation of resistivity logs run on nearby wells. Information may also be obtained from state or tribal regulatory agencies and from local BLM offices.

NOTICES

The privacy Act of 1974 and the regulation in 43 CFR 2.48(d) provide that you be furnished the following information in connection with information required by this application.
AUTHORITY: 30 U.S.C. 181 et seq., 351 et seq., 25 U.S.C. 396; 43 CFR 3160.
PRINCIPAL PURPOSE: The information is used to: (1) Evaluate, when appropriate, approve applications, and report completion of subsequent well operations, on a Federal or Indian lease; and (2) document for administrative use, information for the management, disposal and use of National Resource lands and resources, such as: (a) evaluating the equipment and procedures to be used during a proposed subsequent well operation and reviewing the completed well operations for compliance with the approved plan; (b) requesting and granting approval to perform those actions covered by 43 CFR 3162.3-2, 3162.3-3, and 3162.3-4; (c) reporting the beginning or resumption of production, as required by 43 CFR 3162.4-1(c)and (d) analyzing future applications to drill or modify operations in light of data obtained and methods used.
ROUTINE USES: Information from the record and/or the record will be transferred to appropriate Federal, State, local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecutions in connection with congressional inquiries or to consumer reporting agencies to facilitate collection of debts owed the Government.
EFFECT OF NOT PROVIDING THE INFORMATION: Filing of this notice and report and disclosure of the information is mandatory for those subsequent well operations specified in 43 CFR 3162.3-2, 3162.3-3, 3162.3-4.

The Paperwork Reduction Act of 1995 requires us to inform you that:
The BLM collects this information to evaluate proposed and/or completed subsequent well operations on Federal or Indian oil and gas leases.
Response to this request is mandatory.
The BLM would like you to know that you do not have to respond to this or any other Federal agency-sponsored information collection unless it displays a currently valid OMB control number.

BURDEN HOURS STATEMENT: Public reporting burden for this form is estimated to average 8 hours per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect ofthis form to U.S. Department ofthe Interior, Bureau ofLand Management (1004-0137), Bureau Information Collection Clearance Officer (WO-630), 1849 C St., N.W., Mail Stop 401 LS, Washington, D.C. 20240

Additional Information

Additional Remarks

LTP: fr/2440FNL & 2310FEL to 2540FNL & 1870FWL, NMNM071988B

BHL: fr/2490FNL & 2310FEL to 2590FNL & 1870FWL, Section 17-T23S-R31E NMNM071988B

Additionally, XTO Permian Operating, LLC. respectfully requests permission to change from a three-string design to a four-string design. The surface, intermediate and production hole, casing, and cement based on the attached drilling program. Due to the design change in these strings, the wellhead configuration has also changed based on the attached drilling program.
Casing/Cement design per the attached drilling program.

Attachments:
C102
Drilling Program
MBS
Directional Plan
OLCV
Spud
BOP BTV
Cement Variance

Location of Well

0. SHL: LOT 1 / 210 FNL / 400 FEL / TWSP: 23S / RANGE: 31E / SECTION: 6 / LAT: 32.340174 / LONG: -103.809752 (TVD: 0 feet, MD: 0 feet)
PPP: LOT 2 / 1000 FNL / 2310 FEL / TWSP: 23S / RANGE: 31E / SECTION: 6 / LAT: 32.338005 / LONG: -103.815929 (TVD: 11060 feet, MD: 11593 feet)
PPP: NWNE / 330 FNL / 2310 FEL / TWSP: 23S / RANGE: 31E / SECTION: 7 / LAT: 32.3245 / LONG: -103.81467 (TVD: 11060 feet, MD: 16543 feet)
PPP: NWSE / 2310 FSL / 2310 FEL / TWSP: 23S / RANGE: 31E / SECTION: 6 / LAT: 32.33284 / LONG: -103.81467 (TVD: 11060 feet, MD: 13903 feet)
BHL: SWNE / 2490 FNL / 2310 FEL / TWSP: 23S / RANGE: 31E / SECTION: 18 / LAT: 32.304887 / LONG: -103.815864 (TVD: 11060 feet, MD: 23641 feet)

Sec 06-23S-31E-NMP Sundry 2753454 James Ranch Unit DI 7 Sawtooth 903H Eng Worksheet

James Ranch Unit DI 7 Sawtooth 903H

13 3/8	surface csg in a	17 1/2	inch hole.		Design Factors			Surface				
Segment	#/ft	Grade	Coupling	Body	Collapse	Burst	Length	B@s	a-B	a-C	Weight
"A"	54.50	J 55	BTC	25.21	3.89	7.27	621	10	12.19	7.35	33,845
"B"			BTC				0				0
w/8.4#/g mud, 30min Sfc Csg Test psig:	1,500		Tail Cmt	does not	circ to sfc.		Totals:	621				33,845

Comparison of Proposed to Minimum Required Cement Volumes

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
17 1/2	0.6946	530	835	431	94	9.00	224	2M	1.56

Site plat (pipe racks S or E) as per O.O.1.III.D.4.i. not found.

9 5/8	casing inside the	13 3/8			Design Factors			Int 1				
Segment	#/ft	Grade	Coupling	Body	Collapse	Burst	Length	B@s	a-B	a-C	Weight
"A"	40.00	J 55	BTC	22.89	6.85	2.21	3,891	11	4.13	11.48	155,640
"B"							0				0
w/8.4#/g mud, 30min Sfc Csg Test psig:							Totals:	3,891				155,640
The cement volume(s) are intended to achieve a top of				0	ft from surface or a			621				overlap.

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
12 1/4	0.3132	1740	2413	1249	93	10.50	957	2M	0.81

Class 'H' tail cmt yld > 1.20

7 5/8	casing inside the	9 5/8			Design Factors			Int 2				
Segment	#/ft	Grade	Coupling	Joint	Collapse	Burst	Length	B@s	a-B	a-C	Weight
"A"	29.70	RY P 110	Flush Joint	4.96	2.99	1.84	3,991	5	3.09	5.59	118,533
"B"	29.70	HCL 80	Flush Joint	∞	3.23	1.34	5,869	4	2.25	6.04	174,309
w/8.4#/g mud, 30min Sfc Csg Test psig:	1,500						Totals:	9,860				292,842
The cement volume(s) are intended to achieve a top of				0	ft from surface or a			3891				overlap.

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
8 3/4	0.1005	450	821	1022	-20	9.10	3062	5M	0.56

Tail cmt

5 1/2	casing inside the	7 5/8			Design Factors			Prod 1				
Segment	#/ft	Grade	Coupling	Joint	Collapse	Burst	Length	B@s	a-B	a-C	Weight
"A"	23.00	RY P 110	Semi-Premiur	2.80	2.83	1.95	9,760	2	3.27	4.75	224,480
"B"	23.00	RY P 110	Semi-Flush	∞	2.16	2.46	14,646	2	4.13	3.62	336,858
w/8.4#/g mud, 30min Sfc Csg Test psig:	2,070						Totals:	24,406				561,338
The cement volume(s) are intended to achieve a top of				9360	ft from surface or a			500				overlap.

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
6 3/4	0.0835	1000	1569	1261	24	10.50			0.43

Class 'H' tail cmt yld > 1.20 Capitan Reef est top XXXX.

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	XTO Permian Operating
WELL NAME & NO.:	James Ranch Unit DI 7 Sawtooth 903H
LOCATION:	Sec 06-23S-31E-NMP
COUNTY:	Eddy County, New Mexico

*Changes approved through engineering via **Sundry 2753454** on 10/17/2023. Any previous COAs not addressed within the updated COAs still apply.*

COA

H_2S	○ No	◉ Yes		
Potash / WIPP	○ None	○ Secretary	◉ R-111-P	☐ WIPP
Cave / Karst	○ Low	◉ Medium	○ High	○ Critical
Wellhead	○ Conventional	◉ Multibowl	○ Both	○ Diverter
Cementing	☐ Primary Squeeze	☑ Cont. Squeeze	☑ EchoMeter	☐ DV Tool
Special Req	☑ Break Testing	☐ Water Disposal	☐ COM	☑ Unit
Variance	☑ Flex Hose	☐ Casing Clearance	☐ Pilot Hole	☐ Capitan Reef
Variance	☑ Four-String	☑ Offline Cementing	☐ Fluid-Filled	☐ Open Annulus
☐ **Batch APD / Sundry**				

A. HYDROGEN SULFIDE

A Hydrogen Sulfide (H2S) Drilling Plan shall be activated 500 feet prior to drilling into the **H2S Stream** (per BLM geologist). As a result, the Hydrogen Sulfide area must meet all requirements from 43 CFR 3176, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.

B. CASING

1. The **13-3/8** inch surface casing shall be set at approximately 571 feet (a minimum of 70 feet (Eddy County) into the Rustler Anhydrite, above the salt, and below usable fresh water) and cemented to the surface. ***Notes from the BLM geologist regarding this set point dictate:*** *Operator has extensive drilling experience in this area and has encountered lost circulation in BLM's preferred setpoint for the surface casing just below the Magenta Dolomite. BLM accepts the base of the Rustler Formation and Top of the Salt as surface casing setpoint. Operator must set surface casing at this depth and not deeper in the salt. If operator's proposed setpoint is deeper than top of salt, Operator will set surface casing at top of salt.*

a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
b. Wait on cement (WOC) time for a primary cement job will be a minimum of **24 hours in the Potash Area** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)
c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
d. If cement falls back, remedial cementing will be done prior to drilling out that string.

2. The minimum required fill of cement behind the **9-5/8** inch intermediate casing is:

- Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst, Capitan Reef, or potash.**

❖ In R111 Potash Areas if cement does not circulate to surface on the first two salt protection casing strings, the cement on the 3rd casing salt string must come to surface.

3. The minimum required fill of cement behind the **7-5/8** inch intermediate casing is:

Operator has proposed to cement in two stages by conventionally cementing the first stage and performing a bradenhead squeeze on the second stage, contingent upon no returns to surface.

a. First stage: Operator will cement with intent to reach the top of the **Brushy Canyon at 6550'**

b. Second stage:
- Operator will perform bradenhead squeeze and top-out. Cement to surface. If cement does not reach surface, the appropriate BLM office shall be notified. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst, Capitan Reef, or potash.**

Operator has proposed to pump down 9-5/8" X 7-5/8" annulus after primary cementing stage. Operator must run Echo-meter to verify Cement Slurry/Fluid top in the annulus OR operator shall run a CBL from TD of the 7-5/8" casing to surface after the second stage BH to verify TOC.

Submit results to the BLM. No displacement fluid/wash out shall be utilized at the top of the cement slurry between second stage BH and top out.

If cement does not reach surface, the next casing string must come to surface.

Operator must use a limited flush fluid volume of 1 bbl following backside cementing procedures.

4. The minimum required fill of cement behind the **5-1/2** inch production casing is:

    - Cement should tie-back at least **500 feet** into previous casing string. Operator shall provide method of verification. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst, Capitan Reef, or potash.**

C. PRESSURE CONTROL

1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).

2. Operator has proposed a multi-bowl wellhead assembly. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M)** psi.

    a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
    b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
    c. Manufacturer representative shall install the test plug for the initial BOP test.
    d. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
    e. Whenever any seal subject to test pressure is broken, all the tests in 43 CFR 3172 must be followed.

D. SPECIAL REQUIREMENT (S)

Unit Wells

The well sign for a unit well shall include the unit number in addition to the surface and bottom hole lease numbers. This also applies to participating area numbers. If a participating area has not been established, the operator can use the general unit designation, but will replace the unit number with the participating area number when the sign is replaced.

Commercial Well Determination

A commercial well determination shall be submitted after production has been established for at least six months.

(Note: For a minimum 5M BOPE or less (Utilizing a 10M BOPE system)

BOPE Break Testing Variance

- BOPE Break Testing is ONLY permitted for 5M BOPE or less. **(Annular preventer must be tested to a minimum of 70% of BOPE working pressure and shall be higher than the MASP)**
- BOPE Break Testing is NOT permitted to drilling the production hole section.
- Variance only pertains to the intermediate hole-sections and no deeper than the Bone Springs formation.
- While in transfer between wells, the BOPE shall be secured by the hydraulic carrier or cradle.
- Any well control event while drilling require notification to the BLM Petroleum Engineer **(575-706-2779)** prior to the commencement of any BOPE Break Testing operations.
- A full BOPE test is required prior to drilling the first deep intermediate hole section. If any subsequent hole interval is deeper than the first, a full BOPE test will be required. (200' TVD tolerance between intermediate shoes is allowable).
- The BLM is to be contacted (575-361-2822 Eddy County) 4 hours prior to BOPE tests.
- As a minimum, a full BOPE test shall be performed at 21-day intervals.
- In the event any repairs or replacement of the BOPE is required, the BOPE shall test as per Onshore Oil and Gas Order No. 2.
- If in the event break testing is not utilized, then a full BOPE test would be conducted.

Offline Cementing

Contact the BLM prior to the commencement of any offline cementing procedure.

GENERAL REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

a. Spudding well (minimum of 24 hours)
b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
c. BOPE tests (minimum of 4 hours)

☒ Eddy County
Email **or** call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220, **BLM_NM_CFO_DrillingNotifications@BLM.GOV**
(575) 361-2822

☒ Lea County
Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240,
(575) 689-5981

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.

   a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
   b. When the operator proposes to set surface casing with Spudder Rig
      - Notify the BLM when moving in and removing the Spudder Rig.
      - Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
      - BOP/BOPE test to be conducted per **43 CFR part 3170 Subpart 3172** as soon as 2nd Rig is rigged up on well.

2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.

3. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.

2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log. The casing intergrity test can be done (prior to the cement setting up) immediately after bumping the plug.

3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.

4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.

5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.

7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in **43 CFR part 3170 Subpart 3172** and **API STD 53 Sec. 5.3**.

2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.

3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.

4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:

    a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
    b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
    c. Manufacturer representative shall install the test plug for the initial BOP test.
    d. Whenever any seal subject to test pressure is broken, all the tests in **43 CFR part 3170 Subpart 3172** must be followed.
    e. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.

5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

    a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead cement), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

    b. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the cement plug. The BOPE test can be initiated after bumping the cement plug with the casing valve open. (only applies to single stage cement jobs, prior to the cement setting up.)

    c. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer and can be initiated immediately with the casing valve open. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to **43 CFR part 3170**

Subpart 3172 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (8 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).

d. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.

e. The results of the test shall be reported to the appropriate BLM office.

f. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.

g. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.

h. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per **43 CFR part 3170 Subpart 3172**.

C. DRILLING MUD

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the Wolfcamp formation, and shall be used until production casing is run and cemented.

D. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
30-015-	40295	LOS MEDANOS; BONE SPRING

[4] Property Code	[5] Property Name	[6] Well Number
333473	JRU DI 7 SAWTOOTH FED COM	903H

[7] OGRID No.	[8] Operator Name	[9] Elevation
373075	XTO PERMIAN OPERATING, LLC	3,329'

[10] Surface Location

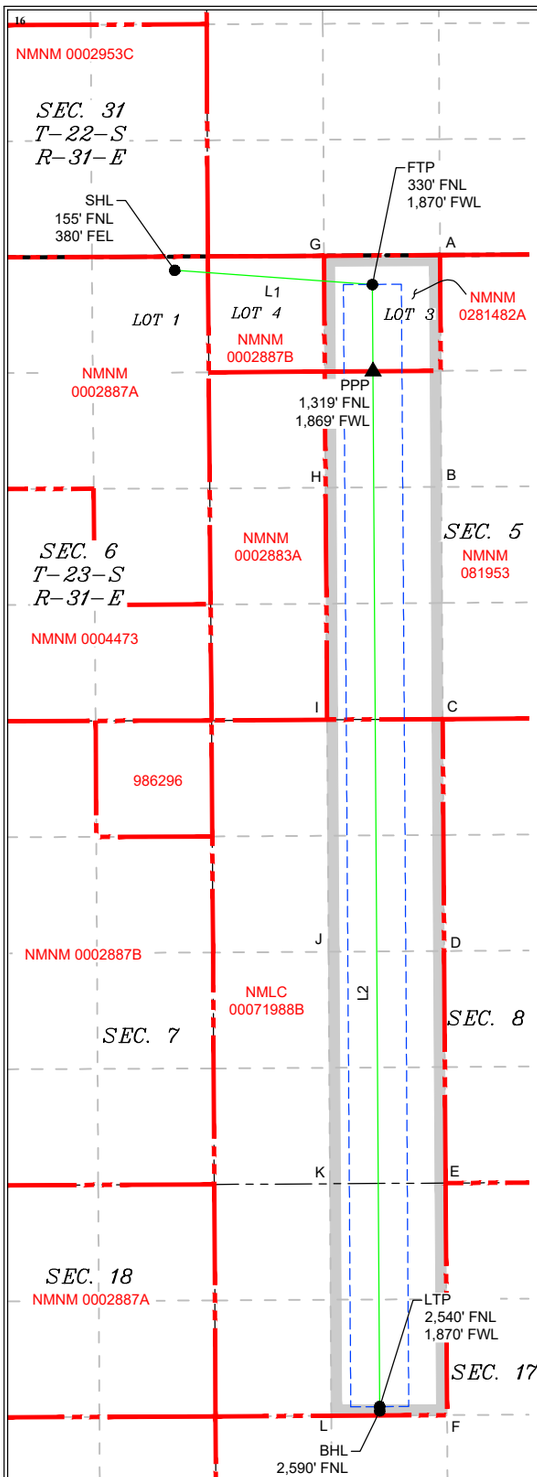
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
1	6	23 S	31 E		155	NORTH	380	EAST	EDDY

[11] Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
F	17	23 S	31 E		2,590	NORTH	1,870	WEST	EDDY

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
399.92			

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



LINE TABLE		
LINE	AZUMITH	LENGTH
L1	274°06'30"	2,256.69'
L2	179°37'25"	12,820.32'

LOT ACREAGE TABLE
SECTION 6, T-23-S, R-31-E LOT 1 = 39.98 ACRES
SECTION 5, T-23-S, R-31-E LOT 4 = 39.98 ACRES LOT 3 = 39.92 ACRES

LEGEND

- SECTION LINE
- WELL BORE
- NEW MEXICO MINERAL LEASE
- 330' BUFFER
- ALLOCATION AREA

COORDINATE TABLE

	SHL (NAD 83 NME)	SHL (NAD 27 NME)
Y =	487,937.9 N	487,877.8 N
X =	703,060.1 E	661,878.0 E
LAT. =	32.340326 °N	32.340203 °N
LONG. =	103.809687 °W	103.809196 °W

	FTP (NAD 83 NME)	FTP (NAD 27 NME)
Y =	487,776.3 N	487,716.1 N
X =	705,311.0 E	664,128.9 E
LAT. =	32.339851 °N	32.339728 °N
LONG. =	103.802402 °W	103.801911 °W

	PPP (NAD 83 NME)	PPP (NAD 27 NME)
Y =	486,787.8 N	486,727.7 N
X =	705,317.5 E	664,135.3 E
LAT. =	32.337134 °N	32.337011 °N
LONG. =	103.802396 °W	103.801906 °W

	LTP (NAD 83 NME)	LTP (NAD 27 NME)
Y =	475,006.2 N	474,946.4 N
X =	705,395.0 E	664,212.4 E
LAT. =	32.304748 °N	32.304625 °N
LONG. =	103.802335 °W	103.801846 °W

	BHL (NAD 83 NME)	BHL (NAD 27 NME)
Y =	474,956.2 N	474,896.4 N
X =	705,395.3 E	664,212.6 E
LAT. =	32.304611 °N	32.304488 °N
LONG. =	103.802335 °W	103.801846 °W

CORNER COORDINATES (NAD 83 NME)		CORNER COORDINATES (NAD 27 NME)	
A - Y = 488,111.1 N	A - X = 706,080.8 E	A - Y = 488,051.0 N	A - X = 664,898.6 E
B - Y = 485,472.0 N	B - X = 706,096.0 E	B - Y = 485,412.0 N	B - X = 664,913.8 E
C - Y = 482,831.3 N	C - X = 706,111.3 E	C - Y = 482,771.3 N	C - X = 664,928.9 E
D - Y = 480,191.1 N	D - X = 706,127.8 E	D - Y = 480,131.2 N	D - X = 664,945.3 E
E - Y = 477,550.9 N	E - X = 706,144.3 E	E - Y = 477,491.0 N	E - X = 664,961.7 E
F - Y = 474,910.4 N	F - X = 706,160.9 E	F - Y = 474,850.6 N	F - X = 664,978.2 E
G - Y = 488,102.8 N	G - X = 704,759.6 E	G - Y = 488,042.7 N	G - X = 663,577.5 E
H - Y = 485,463.3 N	H - X = 704,777.7 E	H - Y = 485,403.2 N	H - X = 663,595.5 E
I - Y = 482,823.0 N	I - X = 704,795.9 E	I - Y = 482,763.0 N	I - X = 663,613.5 E
J - Y = 480,182.9 N	J - X = 704,812.6 E	J - Y = 480,122.9 N	J - X = 663,630.1 E
K - Y = 477,543.1 N	K - X = 704,827.9 E	K - Y = 477,483.3 N	K - X = 663,645.4 E
L - Y = 474,903.2 N	L - X = 704,843.2 E	L - Y = 474,843.4 N	L - X = 663,660.6 E

[17] OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Cassie Evans 9/26/23
Signature Date

Cassie Evans
Printed Name

cassie.evans@exxonmobil.com
E-mail Address

[18] SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

08-02-2023
Date of Survey

Signature and Seal of Professional Surveyor:

MARK DILLON HARP
NEW MEXICO
23786
PROFESSIONAL SURVEYOR

MARK DILLON HARP 23786
Certificate Number

DB 618.013002.06-07

P:\618.013 XTO Energy - NM\002 James Ranch Unit\.06 - DI 7 - EDDY\Wells\-07 - 903H\DWG\SAWTOOTH 903H C-102.dwg

Instructions:

1) Enter all data into table below using the plat, geoprog, and directional plan
2) Enter GeoProg data directly into permit -- surface and intermediate casing/cement calculations are based on salt top & bot
3) If there is not a 3rd bone or Wolfcamp X/Y then hide the row from columns A - M
4) Enter Casing Specs on "Casing Design Page" for Burst, Collapse, and Tension

	Field Needs an Input
	Calculated Field
	Pull Down Menu

Input Data			
Well Name	JRU DI 7 Sawtooth FED COM 903H		
Well Formation and Lateral	3rd Bone Spring Sand		2.5 Mile L
Date Created	9/26/2023		
	SHL Data		BHL Da
Section	6		17
T	23	S	23
R	31	E	31
Northing	155	N	2590
Easting	380	E	1870
County	Eddy		

Formations			
Formation	Well Depth (TVD)	Water/Oil/Gas	
Rustler	324'	Water	
Top of Salt	646'	Water	
Base of Salt	3791'	Water	
Delaware	3998'	Water	
Brushy Canyon	6550'	Water/Oil/Gas	
Bone Spring	7863'	Water	
1st Bone Spring Ss	8893'	Water/Oil/Gas	
2nd Bone Spring Ss	9699'	Water/Oil/Gas	
3rd Bone Spring Sh	10306'	Water/Oil/Gas	
3rd Bone Spring Ss	10674'	Water/Oil/Gas	
Target/Land Curve	**11079'**	**Water/Oil/Gas**	Match Directional Plan wh
BHL	**11209'**	**Water/Oil/Gas**	

Hole Sizes	
Hole Section	Hole Size
Surface	17.5

Intermediate 1	12.25
Intermediate 2	8.75
Production Curve	6.75
Production Lateral	6.75

Mud Weights	
Surface	8.5
Intermediate 1	10
Intermediate 2	8.6
Production	10

Casing Points		
Surface	621'	25' above Top Salt
Intermediate 1	3891'	100' below Base of Salt
Intermediate 2	9860'	~200' above KOP, but ensure casing is set in
DV Tool &/or Int 2 XO	3991'	100' below previous casing shoe (if needed)
Production	24006'	Equals BHL

Casing

Hole Section	Name	Size	Weight
Surface	13.375 | 54.5 | J-55 | BTC	13.375	54.5
Intermediate 1	9.625 | 40 | J-55 | BTC	9.625	40
Intermediate 2	7.625 | 29.7 | RY P-110 | Flush Joint	7.625	29.7
Intermediate 2	7.625 | 29.7 | HC L-80 | Flush Joint	7.625	29.7
Production	5.5 | 23 | RY P-110 | Semi-Premium	5.5	23
Production	5.5 | 23 | RY P-110 | Semi-Flush	5.5	23
Production	5.5 | 23 | RY P-110 | Semi-Flush	5.5	23

Directional		
	MD	TVD
KOP	10,777	10,363
Landing Point	11,902	11,079
TD	24,006	11,079

OH Logs		
If Yes, Paste if no, "NO" >	No	Check 8. to see that it reads correctly

Max Frac Pressure	
12000	psi

Temps	
Surf Temp	BHT
85	185

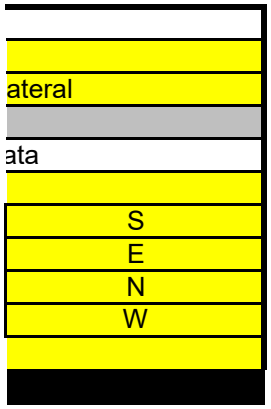
** Calculated off LP TVD

Casing Table

Name	OD	Weight	Grade
20 | 169 | K-55 | BTC	20	169	K-55
18.625 | 87.5 | J-55 | BTC	18 5/8	87.5	J-55
13.375 | 68 | HC L-80 | BTC	13 3/8	68	HC L-80
13.375 | 54.5 | J-55 | BTC	13 3/8	54.5	J-55
9.625 | 40 | J-55 | BTC	9 5/8	40	J-55
9.625 | 40 | HC L-80 | BTC	9 5/8	40	HC L-80
9.625 | 53.5 | HC P-110 | BTC	9 5/8	53.5	HC P-110
9.625 | 40 | HC P-110 | BTC	9 5/8	40	HC P-110
7.625 | 29.7 | RY P-110 | Flush Joint	7 5/8	29.7	RY P-110
7.625 | 29.7 | CY P-110 | Flush Joint	7 5/8	29.7	CY P-110
7.625 | 29.7 | HC L-80 | Flush Joint	7 5/8	29.7	HC L-80
6 | 26 | P-110 | Semi-Flush	6	26	P-110
5.5 | 23 | RY P-110 | Semi-Flush	5 1/2	23	RY P-110
5.5 | 23 | RY P-110 | Semi-Premium	5 1/2	23	RY P-110
5.5 | 20 | RY P-110 | Semi-Flush	5 1/2	20	RY P-110
5.5 | 20 | RY P-110 | Semi-Premium	5 1/2	20	RY P-110

Open hole logging will not be done on this we

tom.



en appropriate

competent rock per geo

Well Plan LP	11,079	-
Geoprog LP	11,079	
Well Plan KOP	10,777	
New KOP	10,777	

Check Hole sizes on Cement Calcs

Grade	Collar
J-55	BTC
J-55	BTC
RY P-110	Flush Joint
HC L-80	Flush Joint
RY P-110	Semi-Premium
RY P-110	Semi-Flush
RY P-110	Semi-Flush

Connection	Tube ID	Collapse	Burst	Tension	
BTC	18.376	2,500	3,380	2,689,000	K-55
BTC	17.755	630	2,250	1,329,000	J-55
BTC	12.415	2,690	5,020	1,545,000	HCL-80
BTC	12.615	1,130	2,740	909,000	J-55
BTC	8.835	2,750	3,950	630,000	J-55
BTC	8.835	4,230	5,750	916,000	HCL-80
BTC	8.835	9,190	10,900	1,718,000	P110 HC
BTC	8.535	4,230	7,910	1,266,000	P110 HC
Flush Joint	6.875	5,350	9,460	558,000	P110 RY -IFJ
Flush Joint	6.875	5,350	9,460	960,000	P110 CY - IFJ
Flush Joint	6.875	5,780	6,880	406,000	HCL-80 - IFJ
Semi-Flush	5.128	13,570	14,010	838,000	P-110 - Talon HTQ
Semi-Flush	4.67	14,540	14,530	707,000	P110 RY - Talon HTQ
Semi-Premium	4.67	14,540	14,520	729,000	P110 RY - Freedom HTQ
Semi-Flush	4.778	11,100	12,640	641,000	P110 RY - Talon HTQ
Semi-Premium	4.778	11,100	12,640	641,000	P110 RY - Freedom HTQ

DRILLING PLAN: BLM COMPLIANCE
(Supplement to BLM 3160-3)

XTO Energy Inc.
JRU DI 7 Sawtooth FED COM 903H
Projected TD: 24005.5' MD / 11079' TVD
SHL: 155' FNL & 380' FEL , Section 6, T23S, R31E
BHL: 2590' FNL & 1870' FWL , Section 17, T23S, R31E
Eddy County, NM

1. Geologic Name of Surface Formation

A. Quaternary

2. Estimated Tops of Geological Markers & Depths of Anticipated Fresh Water, Oil or Gas

Formation	Well Depth (TVD)	Water/Oil/Gas
Rustler	324'	Water
Top of Salt	646'	Water
Base of Salt	3791'	Water
Delaware	3998'	Water
Brushy Canyon	6550'	Water/Oil/Gas
Bone Spring	7863'	Water
1st Bone Spring Ss	8893'	Water/Oil/Gas
2nd Bone Spring Ss	9699'	Water/Oil/Gas
3rd Bone Spring Sh	10306'	Water/Oil/Gas
Target/Land Curve	11079'	Water/Oil/Gas

Rows hidd

*** Hydrocarbons @ Brushy Canyon
*** Groundwater depth 40' (per NM State Engineers Office).

No other formations are expected to yield oil, gas or fresh water in measurable volumes. The surface fresh water sands will be protected by setting 13.375 inch casing @ 621' (25' above the salt) and circulating cement back to surface. The salt will be isolated by setting 9.625 inch casing at 3891' and circulating cement to surface. The second intermediate will isolate from the salt down to the next casing seat by setting 7.625 inch casing at 9860' and cementing to surface. A 6.75 inch curve and 6.75 inch lateral hole will be drilled to 24005.5 MD/TD and 5.5 inch production casing will be set at TD and cemented back up to 2nd intermediate (estimated TOC 9360 feet) per Potash regulations.

3. Casing Design

Hole Size	MD	TVD	OD Csg	Weight	Grade	Collar	New/Used	SF Burst	SF Collapse	SF Tension
17.5	0' – 621'	571'	13.375	54.5	J-55	BTC	New	2.35	4.12	26.86
12.25	0' – 3891'	3688'	9.625	40	J-55	BTC	New	1.76	2.32	4.05
8.75	0' – 3991'	3788'	7.625	29.7	RY P-110	Flush Joint	New	2.85	3.00	1.91
8.75	3991' – 9860'	9502'	7.625	29.7	HC L-80	Flush Joint	New	2.07	3.68	2.33
6.75	0' – 9760'	9409'	5.5	23	RY P-110	Semi-Premium	New	1.21	2.86	1.96
6.75	9760' - 24005.5'	10451'	5.5	23	RY P-110	Semi-Flush	New	1.21	2.52	4.82

· Production casing meets the clearance requiremenets as tapered string crosses over before encountering the intermediate shoe, per Onshore Order 2.3.B.1
· XTO requests the option to utilize a spudder rig (Atlas Copco RD20 or Equivalent) to set and cement surface and intermediate 1 casing per this Sundry
· XTO requests to not utilize centralizers in the curve and lateral
· 9.625 Collapse analyzed using 50% evacuation based on regional experience.
· 7.625 Collapse analyzed using 50% evacuation based on regional experience.
· 5.5 Tension calculated using vertical hanging weight plus the lateral weight multiplied by a friction factor of 0.35
· Test on 2M annular & Casing will be limited to 70% burst of the casing or 1500 psi, whichever is less
· XTO requests the option to use 5" BTC Float equipment for the the production casing

Wellhead:

Permanent Wellhead – Multibowl System
A. Starting Head: 13-5/8" 10M top flange x 13-3/8" bottom
B. Tubing Head: 13-5/8" 10M bottom flange x 7-1/16" 15M top flange
· Wellhead will be installed by manufacturer's representatives.
· Manufacturer will monitor welding process to ensure appropriate temperature of seal.
· Operator will test the 7-5/8" casing per BLM Onshore Order 2
· Wellhead Manufacturer representative will not be present for BOP test plug installation

Check casing size her

4. Cement Program

Surface Casing: 13.375, 54.5 New BTC, J-55 casing to be set at +/- 621

Lead: 230 sxs EconoCem-HLTRRC (mixed at 12.9 ppg, 1.87 ft3/sx, 10.13 gal/sx water)
Tail: 300 sxs Class C + 2% CaCl (mixed at 14.8 ppg, 1.35 ft3/sx, 6.39 gal/sx water)
Top of Cement: Surface
Compressives: 12-hr = 250 psi 24 hr = 500 psi

Due to the high probability of not getting cement to surface during conventional top-out jobs in the area, ~10-20 ppb gravel will be added on the backside of the 1" to get cement to surface, if required.

1st Intermediate Casing: 9.625, 40 New BTC, J-55 casing to be set at +/- 3891

Lead: 1610 sxs Class C (mixed at 12.9 ppg, 1.39 ft3/sx, 10.13 gal/sx water)
Tail: 130 sxs Class C + 2% CaCl (mixed at 14.8 ppg, 1.35 ft3/sx, 6.39 gal/sx water)
Top of Cement: Surface
Compressives: 12-hr = 900 psi 24 hr = 1500 psi

2nd Intermediate Casing: 7.625, 29.7 New casing to be set at +/- 9860 DV Tool can be hidder
1st Stage
Optional Lead: 150 sxs Class C (mixed at 10.5 ppg, 2.77 ft3/sx, 15.59 gal/sx water)
TOC: 3691
Tail: 300 sxs Class C (mixed at 14.8 ppg, 1.35 ft3/sx, 6.39 gal/sx water)
TOC: Brushy Canyon @ 6550
Compressives: 12-hr = 900 psi 24 hr = 1150 psi

2nd Stage
Lead: 0 sxs Class C (mixed at 12.9 ppg, 2.16 ft3/sx, 9.61 gal/sx water)
Tail: 410 sxs Class C (mixed at 14.8 ppg, 1.33 ft3/sx, 6.39 gal/sx water)
Top of Cement: 0
Compressives: 12-hr = 900 psi 24 hr = 1150 psi

Bradenhead squeeze

XTO requests to pump a two stage cement job on the 7-5/8" intermediate casing string with the first stage being pumped conventionally with the calculated top of cement at the Brush Canyon (6550') and the second stage performed as a bradenhead squeeze with planned cement from the Brushy Canyon to surface. If cement is not visually confirmed to circulate to surface, the final cement top after the second stage job will be verified by Echo-meter. If necessary, a top out consisting of 1,500 sack of Class C cement + 3% Salt + 1% PreMag-M + 6% Bentonite Gel (2.30 yld, 12.91 ppg) will be executed as a contingency. If cement is still unable to circulate to surface, another Echo-meter run will be performed for cement top verification.

XTO will include the Echo-meter verified fluid top and the volume of displacement fluid above the cement slurry in the annulus in all post-drill sundries on wells utilizing this cement program.

XTO will report to the BLM the volume of fluid (limited to 5 bbls) used to flush intermediate casing valves following backside cementing procedures.

XTO requests to pump an Optional Lead if well conditions dictate in an attempt to bring cement to surface. If cement reaches the desired height, the BLM will be notified and the second stage bradenhead squeeze and subsequent TOC verification will be negated.

XTO requests the option to conduct the bradenhead squeeze and TOC verification offline as per standard approval from BLM when unplanned remediation is needed and batch drilling is approved. In the event the bradenhead is conducted, we will ensure the first stage cement job is cemented properly and the well is static with floats holding and no pressure on the csg annulus as with all other casing strings where batch drilling operations occur before moving off the rig. The TA cap will also be installed per Cactus procedure and pressure inside the casing will be monitored via the valve on the TA cap as per standard batch drilling ops.

Production Casing: 5.5, 23 New Semi-Flush, RY P-110 casing to be set at +/- 24005.5

Lead: 50 sxs NeoCem (mixed at 11.5 ppg, 2.69 ft3/sx, 15.00 gal/sx water) Top of Cement: 9360 feet
Tail: 950 sxs VersaCem (mixed at 13.2 ppg, 1.51 ft3/sx, 8.38 gal/sx water) Top of Cement: 10776.7 feet
Compressives: 12-hr = 1375 psi 24 hr = 2285 psi

XTO requests the option to offline cement and remediate (if needed) surface and intermediate casing strings where batch drilling is approved and if unplanned remediation is needed. XTO will ensure well is static with no pressure on the csg annulus, as with all other casing strings where batch drilling operations occur before moving off the rig. The TA cap will also be installed when applicable per Cactus procedure and pressure inside the casing will be monitored via the valve on the TA cap as per standard batch drilling ops. Offline cement operations will then be conducted after the rig is moved off the current well to the next well in the batch sequence.

5. Pressure Control Equipment

Temporary wellhead/d

Check casing sizes he

Once the permanent WH is installed on the 13.375 casing, the blow out preventer equipment (BOP) will consist of a 13-5/8" minimum 5M Hydril and a 13-5/8" minimum 5M Double Ram BOP. MASP should not exceed 3324 psi. In any instance where 10M BOP is required by BLM, XTO requests a variance to utilize 5M annular with 10M ram preventers (a common BOP configuration, which allows use of 10M rams in unlikely event that pressures exceed 5M).

All BOP testing will be done by an independent service company. Annular pressure tests will be limited to 50% of the working pressure. When nippling up on the 13.375, 5M bradenhead and flange, the BOP test will be limited to 5000 psi. When nippling up on the 7.625, the BOP will be tested to a minimum of 5000 psi. All BOP tests will include a low pressure test as per BLM regulations. The 5M BOP diagrams are attached. Blind rams will be functioned tested each trip, pipe rams will be functioned tested each day.

A variance is requested to allow use of a flex hose as the choke line from the BOP to the Choke Manifold. If this hose is used, a copy of the manufacturer's certification and pressure test chart will be kept on the rig. Attached is an example of a certification and pressure test chart. The manufacturer does not require anchors.

XTO requests a variance to be able to batch drill this well if necessary. In doing so, XTO will set casing and ensure that the well is cemented properly (unless approval is given for offline cementing) and the well is static. With floats holding, no pressure on the csg annulus, and the installation of a 10K TA cap as per Cactus recommendations, XTO will contact the BLM to skid the rig to drill the remaining wells on the pad. Once surface and both intermediate strings are all completed, XTO will begin drilling the production hole on each of the wells.

A variance is requested to **ONLY** test broken pressure seals on the BOP equipment when moving from wellhead to wellhead which is in compliance with API Standard 53. API standard 53 states, that for pad drilling operation, moving from one wellhead to another within 21 days, pressure testing is required for pressure-containing and pressure-controlling connections when the integrity of a pressure seal is broken. Based on discussions with the BLM on February 27th 2020, we will request permission to **ONLY** retest broken pressure seals if the following conditions are met: 1. After a full BOP test is conducted on the first well on the pad 2. When skidding to drill an intermediate section that does not penetrate into the Wolfcamp.

6. Proposed Mud Circulation System

INTERVAL	Hole Size	Mud Type	MW (ppg)	Viscosity (sec/qt)	Fluid Loss (cc)
0' - 621'	17.5	FW/Native	8.5-9	35-40	NC
621' - 3891'	12.25	Brine	10-10.5	30-32	NC
3891' to 9860'	8.75	BDE/OBM or FW/Brine	8.6-9.1	30-32	NC
9860' to 24005.5'	6.75	OBM	10-10.5	50-60	NC - 20

Check properties

The necessary mud products for weight addition and fluid loss control will be on location at all times.

Spud with fresh water/native mud. Drill out from under 13-3/8" surface casing with brine solution. A 10.0 ppg -10.5 ppg brine mud will be used while drilling through the salt formation. Use fibrous materials as needed to control seepage and lost circulation. Pump viscous sweeps as needed for hole cleaning. Pump speed will be recorded on a daily drilling report after mudding up. A Pason or Totco will be used to detect changes in loss or gain of mud volume. A mud test will be performed every 24 hours to determine: density, viscosity, strength, filtration and pH as necessary. Use available solids controls equipment to help keep mud weight down after mud up. Rig up solids control equipment to operate as a closed loop system.

Double che

7. Auxiliary Well Control and Monitoring Equipment

A. A Kelly cock will be in the drill string at all times.
B. A full opening drill pipe stabbing valve having appropriate connections will be on the rig floor at all times.
C. H2S monitors will be on location when drilling below the 13.375 casing.

8. Logging, Coring and Testing Program

Mud Logger: Mud Logging Unit (2 man) below intermediate casing.

Open hole logging will not be done on this well.

9. Abnormal Pressures and Temperatures / Potential Hazards

None Anticipated. BHT of 175 to 195 F is anticipated. No H2S is expected but monitors will be in place to detect any H2S occurrences. Should these circumstances be encountered the operator and drilling contractor are prepared to take all necessary steps to ensure safety of all personnel and environment. Lost circulation could occur but is not expected to be a serious problem in this area and hole seepage will be compensated for by additions of small amounts of LCM in the drilling fluid. The maximum anticipated bottom hole pressure for this well is 5761 psi.

10. Anticipated Starting Date and Duration of Operations

Anticipated spud date will be after BLM approval. Move in operations and drilling is expected to take 40 days.

JRU DI 7 Sawtooth FED COM 903H	**24,006** ft TD	9/26/2023	

Field Needs an Input	BLM Min. Burst:	1
Calculated Field	BLM Min. Collapse:	1.125
Collapse Assumptions	BLM Min. Tension (Dry):	1.6
Burst Assumptions	BLM Min. Tension (Buoyed):	1.8

13.375 | 54.5 | J-55 | BTC — 621 MD/TVD — 8.5 ppg mud

collapse = 1130 — Burst = 2740 — Tension = 909000

Collapse
(8.5)(0.052)(621) = 274 psi — 1130/274 = 4.12 SF for collapse

Burst
Max exp. surf pressure = 1167 psi — 2740/1167.3 = 2.35 SF for burst — Burst Assumes MASP Equation (10)(0.052)(3891) - (.22)(3891)

Tension
(621)(54.5)= 33844.5 lb — 909/33.8 = 26.86 SF for tension

9.625 | 40 | J-55 | BTC — 3891 MD/TVD — 10 # mud

Collapse = 2750 — Burst = 3950 — Tension = 630000

Collapse
(10)(0.052)(3891) * = 1184 psi — 2750/1184 = 2.32 SF for collapse — Collapse Assumes 1/2 evacuation & FW internal
*Less internal fluid height — Fluid Top: 1946 MD/TVD

Burst
Max expected surf pressure = 2240 psi — 3950/2240.192 = 1.76 SF for burst — Burst Assumes MASP Equation (8.6)(0.052)(9860) - (.22)(9860)

Tension
(3891)(40)= 155640 lb — 630/155.64 = 4.05 SF for tension

7.625 | 29.7 | RY P-110 | Flush Joint — 0 Top MD/TVD — 8.6 # mud
3991 Bottom MD/TVD

Collapse = 5350 — Burst = 9460 — Tension = 558000

Collapse
(8.6)(0.052)(3991)= 1785 psi — 5350/1785= 3.00 SF for collapse — Collapse Assumes full evacuation

Burst
Max expected surf pressure = 3324 psi — 9460/3323.7= 2.85 SF for burst — Burst Assumes MASP Equation (10)(0.052)(11079) - (.22)(11079)

Tension
(3991*29.7)+(5869*29.7)= 292842 lb — 558/292.842= 1.91 SF for tension

7.625 | 29.7 | HC L-80 | Flush Joint — 3991 Top MD/TVD — 8.6 # mud
9860 TD MD/TVD

Collapse = 5780 — Burst = 6880 — Tension = 406000

Collapse
(8.6)(0.052)(9860) * = 1572 psi — 5780/1572= 3.68 SF for collapse — Collapse Assumes 1/3 evacuation & FW internal
*Less internal fluid height — Fluid Top: 6573 MD/TVD

Burst
Max expected surf pressure = 3324 psi — 6880/3323.7= 2.07 SF for burst — Burst Assumes MASP Equation (10)(0.052)(11079) - (.22)(11079)

Tension
(5869)(29.7)= 174309.3 lb — 406/174.3093= 2.33 SF for tension

5.5 | 23 | RY P-110 | Semi-Premium — 0 Top — 9,760 TD (MD) — 10 # mud
0.35 FF

Collapse = 14540 — Burst= 14520 — Tension= 729000

Collapse
(10)(0.052)(9760) = 5075 psi — 14540/5075= 2.86 SF for collapse

Burst
Max expected surf pressure = 12000 psi *for frac — 14520/12000= 1.21 SF for burst

Tension
#REF! 371175 lb — 729/371.17469= 1.96 SF for tension

5.5 | 23 | RY P-110 | Semi-Flush — 9,760 Top — 24,006 TD (MD) — 11,079 TVD (max) — 10 # mud
0.35 FF — 11,902 LP (MD) — 12103.8 Lat Length

Collapse= 14540 — Burst= 14530 — Tension= 707000

Collapse
(10)(0.052)(11079) = 5761 psi — 14540/5761= 2.52 SF for collapse

Burst
Max expected surf pressure = 12000 psi *for frac — 14530/12000= 1.21 SF for burst

Tension
#REF! 146695 lb — 707/146.69469= 4.82 SF for tension

Surface Cement			1st Intermediate	
Top of Cement:	0 ft, MD		Top of Cement:	0
Casing Shoe:	621 ft, MD		Casing Shoe:	3891
Hole Size:	17.5 in		Hole Size:	12.25
Casing Size:	13.375 in		Casing Size:	9.625
Lead			Lead	
% Excess, OH	100 %		% Excess, OH	100
yield	1.87 ft^3 / sack		yield	1.39
TOC for Lead	0 ft, MD		TOC for Lead	0
Tail			Tail	
% Excess, OH	100 %		% Excess, OH	100
yield	1.35 ft^3 / sack		yield	1.35
TOC for Tail	321 ft, MD		TOC for Tail	3,591
Lead Calcs			*Lead Calcs*	
Annular Volume:	445.98 ft^3 (w/ excess)		Annular Volume:	2249.44
Cement Volume:	238.5 sacks		Cement Volume:	1618.3
Tail Calcs			*Tail Calcs*	
Annular Volume:	416.81 ft^3 (w/ excess)		Annular Volume:	187.92
Cement Volume:	308.7 sacks		Cement Volume:	139.2

Field Needs an Input
Calculated Field

	2nd Intermediate, 2nd Stage			2nd Intermediate,
ft, MD	Top of Cement:	0	ft, MD	Top of Cem
ft, MD	Bottom of Cement:	3,691	ft, MD	Casing Sho
in	Hole Size:	8.75	in	Hole Size:
in	Casing Size:	7.625	in	Casing Size
	Lead			Lead
%	% Excess, OH	100	%	% Excess,
ft^3 / sack	yield	2.16	ft^3 / sack	yield
ft, MD	TOC for Lead	0	ft, MD	TOC for Le
	Tail			Tail
%	% Excess, OH	50	%	% Excess,
ft^3 / sack	yield	1.33	ft^3 / sack	yield
ft, MD	TOC for Tail	0	ft, MD	TOC for Ta
	Lead Calcs			*Lead Calcs*
ft^3 (w/ excess)	Annular Volume:	0.00	ft^3 (w/ excess)	Annular Vo
sacks	Cement Volume:	0.0	sacks	Cement Vo
	Tail Calcs			*Tail Calcs*
ft^3 (w/ excess)	Annular Volume:	556.32	ft^3 (w/ excess)	Annular Vo
sacks	Cement Volume:	418.3	sacks	Cement Vo

1st Stage			Production Cement		
ıent:	3691	ft, MD	Top of Cement:	9360	ft, MD
ɔe:	9860	ft, MD	Casing Shoe:	24,006	ft, MD
			Kick Off Point:	10,777	ft, MD
	8.75	in	Landing Point:	11,902	ft, MD
e:	7.625	in	Hole Size 1:	6.75	in
			Hole Size 2:	6.75	in
			Casing Size 1:	5.5	in
			Casing Size 2:	5.5	in
			XO Depth:	0	ft, MD
			Lead		
OH	50	%	% Excess, OH	30	%
	2.77	ft^3 / sack	yield	2.69	ft^3 / sack
ad	3,691	ft, MD	TOC for Lead	9,360	ft, MD
			Tail		
OH	25	%	% Excess, OH	30	%
	1.35	ft^3 / sack	yield	1.51	ft^3 / sack
il	6,550	ft, MD	TOC for Tail	10,777	ft, MD
			Lead Calcs		
lume:	430.91	ft^3 (w/ excess)	Annular Volume:	153.82	ft^3 (w/ excess)
lume:	155.6	sacks	Cement Volume:	57.2	sacks
			Tail Calcs		
lume:	415.74	ft^3 (w/ excess)	Annular Volume:	1436.36	ft^3 (w/ excess)
lume:	308.0	sacks	Cement Volume:	951.2	sacks

= Calculate

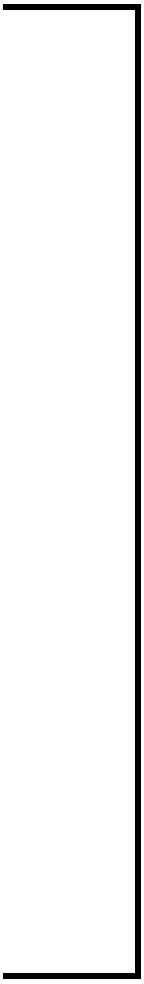
		Field Needs an Input
		Calculated Field

Permanent System

Prod MW =	10	ppg	
Max TVD =	11,079	ft	
			3M system if MASP < 3000
BHP =	5761	psi	5M system if 3000 < MASP < 5000
			10M system if MASP > 5000
MASP =	**3324**	**psi**	
Permit for =	5M		
	5000	psi	

Temporary System (if required)

1st Int MW =	10	ppg	
Max TVD =	3891	ft	
			2M system if MASP < 3000
BHP =	2023	psi	5M system if 2000 < MASP < 5000
MASP =	**1167**	**psi**	
Permit for =	2M		
	2000		



JRU DI 7 Sawtooth FED COM 903H

3rd Bone Spring Sand | 2.5 Mile Lateral

County: Eddy County, NM
SHL: SHL: 155' FNL & 380' FEL , Section 6, T23S, R31E
BHL: BHL: 2590' FNL & 1870' FWL , Section 17, T23S, R31E
Area: Potash mines (~4,500')

TVD	Geology	Casing & Cement	Wellhead	Hole Size	General Notes
120'	*Conductor*		(Tech Data Sheet)	17.5"	
324'	Rustler				
		13.375 | 54.5 | J-55 | BTC	**621' MD**	12-1/4"	
646'	Top of Salt				
3,791'	Base of Salt				
		9.625 | 40 | J-55 | BTC	**3891' MD**	8-3/4"	
3,998'	Delaware/Lamar				
			Composite DV Tool (If Required)		
6,550'	Brushy Canyon Ss.				
7,863'	Bone Spring Lm				
8,893'	1st Bone Spring Ss.				
		7.625 | 29.7 | RY P-110 | Flush Joint **7.625 | 29.7 | HC L-80 | Flush Joint**	**9860' MD**	6-3/4" Curve	
			KOP 10777' MD 10363' TVD		
9,699'	2nd Bone Spring Ss.			6-3/4" Lateral	
			LP 11902' MD 11079' TVD		
		5.5 | 23 | RY P-110 | Semi-Premium **5.5 | 23 | RY P-110 | Semi-Flush**		**24,006' MD**	
11,079'	Landing TVD	**5.5 | 23 | RY P-110 | Semi-Flush**		**11,079' TVD @ BHL**	
11,079'	TVD @ BHL				

Formations
1st Bone Spring
1st Bone Spring Sand
2nd Bone Spring
2nd Bone Spring Shale
2nd Bone Spring Sand
3rd Bone Spring
3rd Bone Spring Shale
3rd Bone Spring Sand
Wolfcamp X
Wolfcamp Y
Wolfcamp X/Y
Wolfcamp A
Wolfcamp B
Wolfcamp B/C
Wolfcamp C
Wolfcamp D/E
Wolfcamp D
Wolfcamp E

Lateral Length
1 Mile Lateral
1.5 Mile Lateral
2 Mile Lateral
2.25 Mile Lateral
2.5 Mile Lateral
3 Mile Lateral
3.5 Mile Lateral
4 Mile Lateral

1st Bone Spring
1st Bone Spring
1st Bone Spring
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Wolfcamp X
Wolfcamp X
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Wolfcamp D/E
Wolfcamp D/E
1st Bone Spring Sand
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Wolfcamp C
Wolfcamp C
Wolfcamp C
Wolfcamp C
Wolfcamp C
Wolfcamp C
Wolfcamp C
Wolfcamp B/C
Wolfcamp B/C
Wolfcamp B/C
Wolfcamp B/C
Wolfcamp B/C

Wolfcamp B/C
Wolfcamp B/C
Wolfcamp D
Wolfcamp D
Wolfcamp D
Wolfcamp D
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Wolfcamp D
Wolfcamp D
Wolfcamp E
Wolfcamp E
Wolfcamp E
Wolfcamp E
Wolfcamp E
Wolfcamp E
Wolfcamp E
Wolfcamp X/Y
Wolfcamp X/Y
Wolfcamp X/Y
Wolfcamp X/Y
Wolfcamp X/Y
Wolfcamp X/Y
Wolfcamp X/Y
1st Bone Spring
2nd Bone Spring
3rd Bone Spring
3rd Bone Spring Shale
Wolfcamp X
Wolfcamp Y
Wolfcamp A
Wolfcamp B
Wolfcamp D/E
1st Bone Spring Sand
2nd Bone Spring Shale
2nd Bone Spring Sand
3rd Bone Spring Sand
Wolfcamp C
Wolfcamp B/C
Wolfcamp D
Wolfcamp E
Wolfcamp X/Y

Target formation and Lateral Length: 3rd Bone Spring Sand 2.5 Mile Lateral

		Production 1
1 Mile Lateral	1st Bone Spring 1 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
1.5 Mile Lateral	1st Bone Spring 1.5 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2 Mile Lateral	1st Bone Spring 2 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2.5 Mile Lateral	1st Bone Spring 2.5 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3 Mile Lateral	1st Bone Spring 3 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3.5 Mile Lateral	1st Bone Spring 3.5 Mile Lateral	6 | 26 | P-110 | Semi-Flush
4 Mile Lateral	1st Bone Spring 4 Mile Lateral	6 | 26 | P-110 | Semi-Flush
1 Mile Lateral	2nd Bone Spring 1 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
1.5 Mile Lateral	2nd Bone Spring 1.5 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2 Mile Lateral	2nd Bone Spring 2 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2.5 Mile Lateral	2nd Bone Spring 2.5 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3 Mile Lateral	2nd Bone Spring 3 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3.5 Mile Lateral	2nd Bone Spring 3.5 Mile Lateral	6 | 26 | P-110 | Semi-Flush
4 Mile Lateral	2nd Bone Spring 4 Mile Lateral	6 | 26 | P-110 | Semi-Flush
1 Mile Lateral	3rd Bone Spring 1 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
1.5 Mile Lateral	3rd Bone Spring 1.5 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2 Mile Lateral	3rd Bone Spring 2 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2.5 Mile Lateral	3rd Bone Spring 2.5 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3 Mile Lateral	3rd Bone Spring 3 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3.5 Mile Lateral	3rd Bone Spring 3.5 Mile Lateral	6 | 26 | P-110 | Semi-Flush
4 Mile Lateral	3rd Bone Spring 4 Mile Lateral	6 | 26 | P-110 | Semi-Flush
1 Mile Lateral	3rd Bone Spring Shale 1 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
1.5 Mile Lateral	3rd Bone Spring Shale 1.5 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2 Mile Lateral	3rd Bone Spring Shale 2 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2.5 Mile Lateral	3rd Bone Spring Shale 2.5 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3 Mile Lateral	3rd Bone Spring Shale 3 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3.5 Mile Lateral	3rd Bone Spring Shale 3.5 Mile Lateral	6 | 26 | P-110 | Semi-Flush
4 Mile Lateral	3rd Bone Spring Shale 4 Mile Lateral	6 | 26 | P-110 | Semi-Flush
1 Mile Lateral	Wolfcamp X 1 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
1.5 Mile Lateral	Wolfcamp X 1.5 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2 Mile Lateral	Wolfcamp X 2 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
2.5 Mile Lateral	Wolfcamp X 2.5 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3 Mile Lateral	Wolfcamp X 3 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3.5 Mile Lateral	Wolfcamp X 3.5 Mile Lateral	6 | 26 | P-110 | Semi-Flush
4 Mile Lateral	Wolfcamp X 4 Mile Lateral	6 | 26 | P-110 | Semi-Flush
1 Mile Lateral	Wolfcamp Y 1 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
1.5 Mile Lateral	Wolfcamp Y 1.5 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2 Mile Lateral	Wolfcamp Y 2 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
2.5 Mile Lateral	Wolfcamp Y 2.5 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3 Mile Lateral	Wolfcamp Y 3 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3.5 Mile Lateral	Wolfcamp Y 3.5 Mile Lateral	6 | 26 | P-110 | Semi-Flush
4 Mile Lateral	Wolfcamp Y 4 Mile Lateral	6 | 26 | P-110 | Semi-Flush
1 Mile Lateral	Wolfcamp A 1 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
1.5 Mile Lateral	Wolfcamp A 1.5 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2 Mile Lateral	Wolfcamp A 2 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
2.5 Mile Lateral	Wolfcamp A 2.5 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3 Mile Lateral	Wolfcamp A 3 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3.5 Mile Lateral	Wolfcamp A 3.5 Mile Lateral	6 | 26 | P-110 | Semi-Flush

4 Mile Lateral	Wolfcamp A 4 Mile Lateral	6 | 26 | P-110 | Semi-Flush
1 Mile Lateral	Wolfcamp B 1 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
1.5 Mile Lateral	Wolfcamp B 1.5 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2 Mile Lateral	Wolfcamp B 2 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
2.5 Mile Lateral	Wolfcamp B 2.5 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3 Mile Lateral	Wolfcamp B 3 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3.5 Mile Lateral	Wolfcamp B 3.5 Mile Lateral	6 | 26 | P-110 | Semi-Flush
4 Mile Lateral	Wolfcamp B 4 Mile Lateral	6 | 26 | P-110 | Semi-Flush
1 Mile Lateral	Wolfcamp D/E 1 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
1.5 Mile Lateral	Wolfcamp D/E 1.5 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2 Mile Lateral	Wolfcamp D/E 2 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
2.5 Mile Lateral	Wolfcamp D/E 2.5 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3 Mile Lateral	Wolfcamp D/E 3 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3.5 Mile Lateral	Wolfcamp D/E 3.5 Mile Lateral	6 | 26 | P-110 | Semi-Flush
4 Mile Lateral	Wolfcamp D/E 4 Mile Lateral	6 | 26 | P-110 | Semi-Flush
1 Mile Lateral	1st Bone Spring Sand 1 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
1.5 Mile Lateral	1st Bone Spring Sand 1.5 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2 Mile Lateral	1st Bone Spring Sand 2 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2.5 Mile Lateral	1st Bone Spring Sand 2.5 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3 Mile Lateral	1st Bone Spring Sand 3 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3.5 Mile Lateral	1st Bone Spring Sand 3.5 Mile Lateral	6 | 26 | P-110 | Semi-Flush
4 Mile Lateral	1st Bone Spring Sand 4 Mile Lateral	6 | 26 | P-110 | Semi-Flush
1 Mile Lateral	2nd Bone Spring Shale 1 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
1.5 Mile Lateral	2nd Bone Spring Shale 1.5 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2 Mile Lateral	2nd Bone Spring Shale 2 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2.5 Mile Lateral	2nd Bone Spring Shale 2.5 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3 Mile Lateral	2nd Bone Spring Shale 3 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3.5 Mile Lateral	2nd Bone Spring Shale 3.5 Mile Lateral	6 | 26 | P-110 | Semi-Flush
4 Mile Lateral	2nd Bone Spring Shale 4 Mile Lateral	6 | 26 | P-110 | Semi-Flush
1 Mile Lateral	2nd Bone Spring Sand 1 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
1.5 Mile Lateral	2nd Bone Spring Sand 1.5 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2 Mile Lateral	2nd Bone Spring Sand 2 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2.5 Mile Lateral	2nd Bone Spring Sand 2.5 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3 Mile Lateral	2nd Bone Spring Sand 3 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3.5 Mile Lateral	2nd Bone Spring Sand 3.5 Mile Lateral	6 | 26 | P-110 | Semi-Flush
4 Mile Lateral	2nd Bone Spring Sand 4 Mile Lateral	6 | 26 | P-110 | Semi-Flush
1 Mile Lateral	3rd Bone Spring Sand 1 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
1.5 Mile Lateral	3rd Bone Spring Sand 1.5 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2 Mile Lateral	3rd Bone Spring Sand 2 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2.5 Mile Lateral	3rd Bone Spring Sand 2.5 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3 Mile Lateral	3rd Bone Spring Sand 3 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3.5 Mile Lateral	3rd Bone Spring Sand 3.5 Mile Lateral	6 | 26 | P-110 | Semi-Flush
4 Mile Lateral	3rd Bone Spring Sand 4 Mile Lateral	6 | 26 | P-110 | Semi-Flush
1 Mile Lateral	Wolfcamp C 1 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
1.5 Mile Lateral	Wolfcamp C 1.5 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2 Mile Lateral	Wolfcamp C 2 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
2.5 Mile Lateral	Wolfcamp C 2.5 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3 Mile Lateral	Wolfcamp C 3 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3.5 Mile Lateral	Wolfcamp C 3.5 Mile Lateral	6 | 26 | P-110 | Semi-Flush
4 Mile Lateral	Wolfcamp C 4 Mile Lateral	6 | 26 | P-110 | Semi-Flush
1 Mile Lateral	Wolfcamp B/C 1 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
1.5 Mile Lateral	Wolfcamp B/C 1.5 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2 Mile Lateral	Wolfcamp B/C 2 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
2.5 Mile Lateral	Wolfcamp B/C 2.5 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3 Mile Lateral	Wolfcamp B/C 3 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium

3.5 Mile Lateral	Wolfcamp B/C 3.5 Mile Lateral	6 | 26 | P-110 | Semi-Flush
4 Mile Lateral	Wolfcamp B/C 4 Mile Lateral	6 | 26 | P-110 | Semi-Flush
1 Mile Lateral	Wolfcamp D 1 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
1.5 Mile Lateral	Wolfcamp D 1.5 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2 Mile Lateral	Wolfcamp D 2 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
2.5 Mile Lateral	Wolfcamp D 2.5 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3 Mile Lateral	Wolfcamp D 3 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3.5 Mile Lateral	Wolfcamp D 3.5 Mile Lateral	6 | 26 | P-110 | Semi-Flush
4 Mile Lateral	Wolfcamp D 4 Mile Lateral	6 | 26 | P-110 | Semi-Flush
1 Mile Lateral	Wolfcamp E 1 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
1.5 Mile Lateral	Wolfcamp E 1.5 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2 Mile Lateral	Wolfcamp E 2 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
2.5 Mile Lateral	Wolfcamp E 2.5 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3 Mile Lateral	Wolfcamp E 3 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3.5 Mile Lateral	Wolfcamp E 3.5 Mile Lateral	6 | 26 | P-110 | Semi-Flush
4 Mile Lateral	Wolfcamp E 4 Mile Lateral	6 | 26 | P-110 | Semi-Flush
1 Mile Lateral	Wolfcamp X/Y 1 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
1.5 Mile Lateral	Wolfcamp X/Y 1.5 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2 Mile Lateral	Wolfcamp X/Y 2 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
2.5 Mile Lateral	Wolfcamp X/Y 2.5 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3 Mile Lateral	Wolfcamp X/Y 3 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
3.5 Mile Lateral	Wolfcamp X/Y 3.5 Mile Lateral	6 | 26 | P-110 | Semi-Flush
4 Mile Lateral	Wolfcamp X/Y 4 Mile Lateral	6 | 26 | P-110 | Semi-Flush
2.25 Mile Lateral	1st Bone Spring 2.25 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2.25 Mile Lateral	2nd Bone Spring 2.25 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2.25 Mile Lateral	3rd Bone Spring 2.25 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2.25 Mile Lateral	3rd Bone Spring Shale 2.25 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2.25 Mile Lateral	Wolfcamp X 2.25 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
2.25 Mile Lateral	Wolfcamp Y 2.25 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
2.25 Mile Lateral	Wolfcamp A 2.25 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
2.25 Mile Lateral	Wolfcamp B 2.25 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
2.25 Mile Lateral	Wolfcamp D/E 2.25 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
2.25 Mile Lateral	1st Bone Spring Sand 2.25 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2.25 Mile Lateral	2nd Bone Spring Shale 2.25 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2.25 Mile Lateral	2nd Bone Spring Sand 2.25 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2.25 Mile Lateral	3rd Bone Spring Sand 2.25 Mile Lateral	5.5 | 20 | RY P-110 | Semi-Premium
2.25 Mile Lateral	Wolfcamp C 2.25 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
2.25 Mile Lateral	Wolfcamp B/C 2.25 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
2.25 Mile Lateral	Wolfcamp D 2.25 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
2.25 Mile Lateral	Wolfcamp E 2.25 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium
2.25 Mile Lateral	Wolfcamp X/Y 2.25 Mile Lateral	5.5 | 23 | RY P-110 | Semi-Premium

Production 1	Production 2
5.5 | 23 | RY P-110 | Semi-Premium	5.5 | 23 | RY P-110 | Semi-Flush

Production 2	Production 3
5.5 | 20 | RY P-110 | Semi-Flush	5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush	5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush	5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush	5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush	5.5 | 23 | RY P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush	6 | 26 | P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush	6 | 26 | P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush	5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush	5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush	5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush	5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush	5.5 | 23 | RY P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush	6 | 26 | P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush	6 | 26 | P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush	5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush	5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush	5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush	5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush	5.5 | 23 | RY P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush	6 | 26 | P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush	6 | 26 | P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush	5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush	5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush	5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush	5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush	5.5 | 23 | RY P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush	6 | 26 | P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush	6 | 26 | P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush	5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush	5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush	5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush	5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush	5.5 | 23 | RY P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush	6 | 26 | P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush	6 | 26 | P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush	5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush	5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush	5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush	5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush	5.5 | 23 | RY P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush	6 | 26 | P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush	6 | 26 | P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush	5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush	5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush	5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush	5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush	5.5 | 23 | RY P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush	6 | 26 | P-110 | Semi-Flush

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6 | 26 | P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
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5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush

6 | 26 | P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
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5.5 | 23 | RY P-110 | Semi-Flush
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6 | 26 | P-110 | Semi-Flush
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6 | 26 | P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
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5.5 | 20 | RY P-110 | Semi-Flush
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6 | 26 | P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
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5.5 | 23 | RY P-110 | Semi-Flush
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6 | 26 | P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
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6 | 26 | P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush

6 | 26 | P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
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5.5 | 20 | RY P-110 | Semi-Flush
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5.5 | 20 | RY P-110 | Semi-Flush
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5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
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5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush

6 | 26 | P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
6 | 26 | P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 20 | RY P-110 | Semi-Flush
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5.5 | 23 | RY P-110 | Semi-Flush
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5.5 | 20 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush
5.5 | 23 | RY P-110 | Semi-Flush

Production 3	Max Frac Pressure
5.5 | 23 | RY P-110 | Semi-Flush	12000

Max Frac Pressure

10000
10000
10000
12000
12000
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Name
20 | 169 | K-55 | BTC
18.625 | 87.5 | J-55 | BTC
13.375 | 68 | HC L-80 | BT
13.375 | 54.5 | J-55 | BTC
9.625 | 40 | J-55 | BTC
9.625 | 40 | HC L-80 | BTC
9.625 | 53.5 | HC P110 | B
9.625 | 40 | HC P110 | BTC
7.625 | 29.7 | P110 RY -IF
7.625 | 29.7 | P110 CY - IF
7.625 | 29.7 | HCL-80 - IFJ
6 | 26 | P-110 - Talon HTQ
5.5 | 23 | P110 RY - Talon
5.5 | 23 | P110 RY - VAM S
5.5 | 23 | P110 RY - Freed
5.5 | 20 | P110 RY - Talon
5.5 | 20 | P110 RY - Freed

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Casing Table			
	OD	Weight	Grade
	20	169	K-55
	18 5/8	87.5	J-55
C	13 3/8	68	HC L-80
	13 3/8	54.5	J-55
	9 5/8	40	J-55
	9 5/8	40	HC L-80
TC	9 5/8	53.5	HC P110
C	9 5/8	40	HC P110
J | Flush Joint	7 5/8	29.7	P110 RY -IFJ
J | Flush Joint	7 5/8	29.7	P110 CY - IFJ
| Flush Joint	7 5/8	29.7	HCL-80 - IFJ
| Semi-Flush	6	26	P-110 - Talon HTC
HTQ | Semi-Flu	5 1/2	23	P110 RY - Talon HT
SPRINT | Semi-F	5 1/2	23	P110 RY - VAM SPR
om HTQ | Semi-	5 1/2	23	P110 RY - Freedom H
HTQ | Semi-Flu	5 1/2	20	P110 RY - Talon HT
om HTQ | Semi-	5 1/2	20	P110 RY - Freedom H

	Connection	Tube ID	Collapse	Burst	Tension
	BTC	18.376	2,500	3,380	2,689,000
	BTC	17.755	630	2,250	1,329,000
	BTC	12.415	2,690	5,020	1,545,000
	BTC	12.615	1,130	2,740	909,000
	BTC	8.835	2,750	3,950	630,000
	BTC	8.835	4,230	5,750	916,000
	BTC	8.835	9,190	10,900	1,718,000
	BTC	8.535	4,230	7,910	1,266,000
	Flush Joint	6.875	5,350	9,460	558,000
	Flush Joint	6.875	5,350	9,460	960,000
	Flush Joint	6.875	5,780	6,880	406,000
Q	Semi-Flush	5.128	13,570	14,010	838,000
TQ	Semi-Flush	4.67	14,540	14,530	707,000
INT	Semi-Flush	4.67	14,550	14,530	671,000
HTQ	Semi-Premium	4.67	14,540	14,520	729,000
TQ	Semi-Flush	4.778	11,100	12,640	641,000
HTQ	Semi-Premium	4.778	11,100	12,640	641,000

Well Plan Report - 903 H Well Plan

Measured Depth: 24005.46 ft

TVD RKB: 11079.00 ft

Location

Cartographic Reference System:	New Mexico East - NAD 27
Northing:	487877.80 ft
Easting:	661878.00 ft
RKB:	3361.00 ft
Ground Level:	3315.00 ft
North Reference:	Grid
Convergence Angle:	0.28 Deg
Site:	JRU DI7

Plan Sections 903 H Well Plan

Measured Depth (ft)	Inclination (Deg)	Azimuth (Deg)	TVD RKB (ft)	Y Offset (ft)	X Offset (ft)	Build Rate (Deg/100ft)	Turn Rate (Deg/100ft)	Dogleg Rate (Deg/100ft)
0	0	0.01	0	0	0	0	0	0
1200	0	0.01	1200	0	0	0	0	0
2307.99	22.16	94.12	2280.57	-15.19	211.06	2	0	2
7168.89	22.16	94.12	6782.43	-146.78	2039.82	0	0	0
8276.88	0	0.01	7863	-161.97	2250.88	-2	0	2
10776.68	0	0.01	10362.8	-161.97	2250.88	0	0	0
11901.68	90	179.63	11079	-878.15	2255.48	8	15.97	8
23955.46	90	179.63	11079	-12931.68	2332.86	0	0	0

24005.46	90	179.63	11079	-12981.68	2333.18	0	0	0

Position Uncertainty	903 H Well Plan

Measured Depth (ft)	Inclination (°)	Azimuth (°)	TVD RKB (ft)	Highside Error (ft)	Bias (ft)	Lateral Error (ft)	Bias (ft)	Vertical Error (ft)
0	0	0.007	0	0	0	0	0	0
100	0	0	100	0.358	0	0.179	0	2.3
200	0	0	200	0.717	0	0.538	0	2.309
300	0	0	300	1.075	0	0.896	0	2.325
400	0	0	400	1.434	0	1.255	0	2.347
500	0	0	500	1.792	0	1.613	0	2.374
600	0	0	600	2.151	0	1.972	0	2.406
700	0	0	700	2.509	0	2.33	0	2.443
800	0	0	800	2.868	0	2.689	0	2.485
900	0	0	900	3.226	0	3.047	0	2.531
1000	0	0	1000	3.585	0	3.405	0	2.58
1100	0	0	1100	3.943	0	3.764	0	2.634
1200	0	0.007	1200	4.302	0	4.122	0	2.69
1300	2	94.116	1299.98	4.47	0	4.65	0	2.749
1400	4	94.116	1399.838	4.805	0	4.994	0	2.809
1500	6	94.116	1499.452	5.136	0	5.342	0	2.87
1600	8	94.116	1598.702	5.465	0	5.693	0	2.932

1700	10	94.116	1697.465	5.79	0	6.049	0	2.995
1800	12	94.116	1795.623	6.112	0	6.409	0	3.06
1900	14	94.116	1893.055	6.43	0	6.776	0	3.128
2000	16	94.116	1989.643	6.747	0	7.15	0	3.2
2100	18	94.116	2085.269	7.061	0	7.532	0	3.277
2200	20	94.116	2179.816	7.375	0	7.925	0	3.361
2307.989	22.16	94.116	2280.572	7.712	0	8.364	0	3.461
2400	22.16	94.116	2365.787	8.066	0	8.749	0	3.561
2500	22.16	94.116	2458.4	8.457	0	9.174	0	3.686
2600	22.16	94.116	2551.014	8.853	0	9.607	0	3.817
2700	22.16	94.116	2643.627	9.254	0	10.046	0	3.954
2800	22.16	94.116	2736.241	9.659	0	10.49	0	4.096
2900	22.16	94.116	2828.854	10.067	0	10.938	0	4.242
3000	22.16	94.116	2921.468	10.479	0	11.391	0	4.392
3100	22.16	94.116	3014.081	10.894	0	11.848	0	4.547
3200	22.16	94.116	3106.695	11.31	0	12.308	0	4.704
3300	22.16	94.116	3199.309	11.73	0	12.771	0	4.865
3400	22.16	94.116	3291.922	12.151	0	13.236	0	5.029
3500	22.16	94.116	3384.536	12.574	0	13.704	0	5.195
3600	22.16	94.116	3477.149	12.998	0	14.174	0	5.364
3700	22.16	94.116	3569.763	13.424	0	14.646	0	5.535

3800	22.16	94.116	3662.376	13.852	0	15.119	0	5.709
3900	22.16	94.116	3754.99	14.28	0	15.594	0	5.884
4000	22.16	94.116	3847.603	14.71	0	16.071	0	6.062
4100	22.16	94.116	3940.217	15.141	0	16.549	0	6.242
4200	22.16	94.116	4032.831	15.573	0	17.028	0	6.423
4300	22.16	94.116	4125.444	16.005	0	17.508	0	6.606
4400	22.16	94.116	4218.058	16.438	0	17.989	0	6.791
4500	22.16	94.116	4310.671	16.872	0	18.471	0	6.977
4600	22.16	94.116	4403.285	17.307	0	18.954	0	7.165
4700	22.16	94.116	4495.898	17.742	0	19.438	0	7.354
4800	22.16	94.116	4588.512	18.178	0	19.923	0	7.545
4900	22.16	94.116	4681.125	18.615	0	20.408	0	7.738
5000	22.16	94.116	4773.739	19.052	0	20.894	0	7.931
5100	22.16	94.116	4866.353	19.489	0	21.38	0	8.127
5200	22.16	94.116	4958.966	19.927	0	21.867	0	8.323
5300	22.16	94.116	5051.58	20.365	0	22.354	0	8.521
5400	22.16	94.116	5144.193	20.804	0	22.842	0	8.721
5500	22.16	94.116	5236.807	21.243	0	23.331	0	8.921
5600	22.16	94.116	5329.42	21.682	0	23.82	0	9.123
5700	22.16	94.116	5422.034	22.122	0	24.309	0	9.327
5800	22.16	94.116	5514.647	22.562	0	24.799	0	9.531

5900	22.16	94.116	5607.261	23.002	0	25.289	0	9.738
6000	22.16	94.116	5699.875	23.442	0	25.779	0	9.945
6100	22.16	94.116	5792.488	23.883	0	26.27	0	10.154
6200	22.16	94.116	5885.102	24.324	0	26.76	0	10.364
6300	22.16	94.116	5977.715	24.765	0	27.252	0	10.575
6400	22.16	94.116	6070.329	25.206	0	27.743	0	10.788
6500	22.16	94.116	6162.942	25.648	0	28.235	0	11.003
6600	22.16	94.116	6255.556	26.09	0	28.727	0	11.218
6700	22.16	94.116	6348.169	26.532	0	29.219	0	11.435
6800	22.16	94.116	6440.783	26.974	0	29.712	0	11.654
6900	22.16	94.116	6533.397	27.416	0	30.204	0	11.873
7000	22.16	94.116	6626.01	27.859	0	30.697	0	12.095
7100	22.16	94.116	6718.624	28.301	0	31.19	0	12.317
7168.893	22.16	94.116	6782.428	28.606	0	31.53	0	12.471
7200	21.538	94.116	6811.3	28.761	0	31.682	0	12.542
7300	19.538	94.116	6904.94	29.232	0	32.158	0	12.76
7400	17.538	94.116	6999.746	29.659	0	32.612	0	12.97
7500	15.538	94.116	7095.605	30.041	0	33.045	0	13.169
7600	13.538	94.116	7192.398	30.378	0	33.456	0	13.359
7700	11.538	94.116	7290.009	30.67	0	33.848	0	13.539
7800	9.538	94.116	7388.317	30.915	0	34.219	0	13.711

7900	7.538	94.116	7487.204	31.113	0	34.572	0	13.875
8000	5.538	94.116	7586.549	31.264	0	34.906	0	14.033
8100	3.538	94.116	7686.23	31.368	0	35.223	0	14.184
8200	1.538	94.116	7786.127	31.425	0	35.524	0	14.33
8276.882	0	0.007	7863	35.659	0	31.529	0	14.439
8300	0	0	7886.118	35.724	0	31.596	0	14.471
8400	0	0	7986.118	36.005	0	31.886	0	14.614
8500	0	0	8086.118	36.289	0	32.177	0	14.76
8600	0	0	8186.118	36.573	0	32.47	0	14.909
8700	0	0	8286.118	36.859	0	32.763	0	15.061
8800	0	0	8386.118	37.146	0	33.058	0	15.217
8900	0	0	8486.118	37.435	0	33.355	0	15.376
9000	0	0	8586.118	37.724	0	33.652	0	15.539
9100	0	0	8686.118	38.015	0	33.951	0	15.705
9200	0	0	8786.118	38.307	0	34.25	0	15.875
9300	0	0	8886.118	38.6	0	34.551	0	16.048
9400	0	0	8986.118	38.894	0	34.853	0	16.224
9500	0	0	9086.118	39.189	0	35.156	0	16.404
9600	0	0	9186.118	39.485	0	35.46	0	16.588
9700	0	0	9286.118	39.782	0	35.766	0	16.775
9800	0	0	9386.118	40.081	0	36.072	0	16.965

9900	0	0	9486.118	40.38	0	36.379	0	17.159
10000	0	0	9586.118	40.68	0	36.687	0	17.357
10100	0	0	9686.118	40.981	0	36.995	0	17.558
10200	0	0	9786.118	41.283	0	37.305	0	17.763
10300	0	0	9886.118	41.586	0	37.616	0	17.971
10400	0	0	9986.118	41.89	0	37.927	0	18.183
10500	0	0	10086.118	42.195	0	38.24	0	18.399
10600	0	0	10186.118	42.5	0	38.553	0	18.618
10700	0	0	10286.118	42.806	0	38.867	0	18.841
10776.682	0	0.007	10362.8	43.042	0	39.108	0	19.014
10800	1.865	179.632	10386.114	43.09	0	39.189	0	19.067
10900	9.865	179.632	10485.509	42.902	0	39.492	0	19.298
11000	17.865	179.632	10582.517	42.058	0	39.791	0	19.535
11100	25.865	179.632	10675.247	40.593	0	40.082	0	19.781
11200	33.865	179.632	10761.897	38.569	0	40.362	0	20.038
11300	41.865	179.632	10840.778	36.078	0	40.629	0	20.308
11400	49.865	179.632	10910.356	33.245	0	40.881	0	20.595
11500	57.865	179.632	10969.277	30.246	0	41.118	0	20.901
11600	65.865	179.632	11016.393	27.315	0	41.338	0	21.226
11700	73.865	179.632	11050.788	24.767	0	41.539	0	21.571
11800	81.865	179.632	11071.792	22.979	0	41.72	0	21.932

11901.682	90	179.632	11078.997	22.311	0	41.882	0	22.311
12000	90	179.632	11078.997	22.69	0	42.035	0	22.69
12100	90	179.632	11078.997	23.096	0	42.208	0	23.096
12200	90	179.632	11078.997	23.522	0	42.399	0	23.522
12300	90	179.632	11078.997	23.965	0	42.608	0	23.965
12400	90	179.632	11078.997	24.426	0	42.833	0	24.426
12500	90	179.632	11078.997	24.903	0	43.075	0	24.903
12600	90	179.632	11078.997	25.395	0	43.334	0	25.395
12700	90	179.632	11078.997	25.902	0	43.609	0	25.902
12800	90	179.632	11078.997	26.422	0	43.9	0	26.422
12900	90	179.632	11078.997	26.955	0	44.207	0	26.955
13000	90	179.632	11078.997	27.5	0	44.529	0	27.5
13100	90	179.632	11078.998	28.057	0	44.866	0	28.057
13200	90	179.632	11078.998	28.624	0	45.217	0	28.624
13300	90	179.632	11078.998	29.201	0	45.583	0	29.201
13400	90	179.632	11078.998	29.788	0	45.963	0	29.788
13500	90	179.632	11078.998	30.384	0	46.356	0	30.384
13600	90	179.632	11078.998	30.988	0	46.763	0	30.988
13700	90	179.632	11078.998	31.6	0	47.183	0	31.6
13800	90	179.632	11078.998	32.219	0	47.615	0	32.219
13900	90	179.632	11078.998	32.846	0	48.059	0	32.846

14000	90	179.632	11078.998	33.479	0	48.516	0	33.479
14100	90	179.632	11078.998	34.119	0	48.984	0	34.119
14200	90	179.632	11078.998	34.764	0	49.463	0	34.764
14300	90	179.632	11078.998	35.416	0	49.953	0	35.416
14400	90	179.632	11078.998	36.072	0	50.454	0	36.072
14500	90	179.632	11078.998	36.734	0	50.965	0	36.734
14600	90	179.632	11078.998	37.4	0	51.486	0	37.4
14700	90	179.632	11078.998	38.071	0	52.017	0	38.071
14800	90	179.632	11078.998	38.746	0	52.557	0	38.746
14900	90	179.632	11078.998	39.425	0	53.106	0	39.425
15000	90	179.632	11078.998	40.108	0	53.664	0	40.108
15100	90	179.632	11078.998	40.795	0	54.231	0	40.795
15200	90	179.632	11078.998	41.485	0	54.806	0	41.485
15300	90	179.632	11078.998	42.178	0	55.389	0	42.178
15400	90	179.632	11078.998	42.875	0	55.98	0	42.875
15500	90	179.632	11078.998	43.574	0	56.578	0	43.574
15600	90	179.632	11078.998	44.277	0	57.183	0	44.277
15700	90	179.632	11078.998	44.982	0	57.796	0	44.982
15800	90	179.632	11078.998	45.69	0	58.416	0	45.69
15900	90	179.632	11078.998	46.4	0	59.042	0	46.4
16000	90	179.632	11078.998	47.113	0	59.674	0	47.113

16100	90	179.632	11078.998	47.828	0	60.313	0	47.828
16200	90	179.632	11078.998	48.545	0	60.958	0	48.545
16300	90	179.632	11078.998	49.264	0	61.609	0	49.264
16400	90	179.632	11078.998	49.985	0	62.265	0	49.985
16500	90	179.632	11078.998	50.708	0	62.927	0	50.708
16600	90	179.632	11078.998	51.432	0	63.594	0	51.432
16700	90	179.632	11078.998	52.159	0	64.266	0	52.159
16800	90	179.632	11078.998	52.887	0	64.943	0	52.887
16900	90	179.632	11078.998	53.617	0	65.626	0	53.617
17000	90	179.632	11078.998	54.348	0	66.312	0	54.348
17100	90	179.632	11078.998	55.081	0	67.004	0	55.081
17200	90	179.632	11078.998	55.815	0	67.699	0	55.815
17300	90	179.632	11078.998	56.551	0	68.399	0	56.551
17400	90	179.632	11078.999	57.288	0	69.103	0	57.288
17500	90	179.632	11078.999	58.026	0	69.811	0	58.026
17600	90	179.632	11078.999	58.765	0	70.523	0	58.765
17700	90	179.632	11078.999	59.506	0	71.239	0	59.506
17800	90	179.632	11078.999	60.247	0	71.958	0	60.247
17900	90	179.632	11078.999	60.99	0	72.681	0	60.99
18000	90	179.632	11078.999	61.734	0	73.408	0	61.734
18100	90	179.632	11078.999	62.478	0	74.138	0	62.478

18200	90	179.632	11078.999	63.224	0	74.871	0	63.224
18300	90	179.632	11078.999	63.971	0	75.607	0	63.971
18400	90	179.632	11078.999	64.718	0	76.346	0	64.718
18500	90	179.632	11078.999	65.467	0	77.088	0	65.467
18600	90	179.632	11078.999	66.216	0	77.833	0	66.216
18700	90	179.632	11078.999	66.966	0	78.581	0	66.966
18800	90	179.632	11078.999	67.717	0	79.332	0	67.717
18900	90	179.632	11078.999	68.469	0	80.085	0	68.469
19000	90	179.632	11078.999	69.221	0	80.841	0	69.221
19100	90	179.632	11078.999	69.974	0	81.599	0	69.974
19200	90	179.632	11078.999	70.728	0	82.36	0	70.728
19300	90	179.632	11078.999	71.482	0	83.123	0	71.482
19400	90	179.632	11078.999	72.237	0	83.888	0	72.237
19500	90	179.632	11078.999	72.993	0	84.656	0	72.993
19600	90	179.632	11078.999	73.749	0	85.426	0	73.749
19700	90	179.632	11078.999	74.506	0	86.198	0	74.506
19800	90	179.632	11078.999	75.264	0	86.972	0	75.264
19900	90	179.632	11078.999	76.022	0	87.748	0	76.022
20000	90	179.632	11078.999	76.78	0	88.526	0	76.78
20100	90	179.632	11078.999	77.539	0	89.306	0	77.539
20200	90	179.632	11078.999	78.299	0	90.087	0	78.299

20300	90	179.632	11078.999	79.059	0	90.871	0	79.059
20400	90	179.632	11078.999	79.82	0	91.656	0	79.82
20500	90	179.632	11078.999	80.581	0	92.443	0	80.581
20600	90	179.632	11078.999	81.342	0	93.232	0	81.342
20700	90	179.632	11078.999	82.104	0	94.023	0	82.104
20800	90	179.632	11078.999	82.866	0	94.814	0	82.866
20900	90	179.632	11078.999	83.629	0	95.608	0	83.629
21000	90	179.632	11078.999	84.392	0	96.403	0	84.392
21100	90	179.632	11078.999	85.156	0	97.199	0	85.156
21200	90	179.632	11078.999	85.92	0	97.997	0	85.92
21300	90	179.632	11078.999	86.684	0	98.797	0	86.684
21400	90	179.632	11078.999	87.449	0	99.597	0	87.449
21500	90	179.632	11078.999	88.214	0	100.399	0	88.214
21600	90	179.632	11078.999	88.979	0	101.203	0	88.979
21700	90	179.632	11078.999	89.745	0	102.007	0	89.745
21800	90	179.632	11079	90.511	0	102.813	0	90.511
21900	90	179.632	11079	91.277	0	103.62	0	91.277
22000	90	179.632	11079	92.044	0	104.429	0	92.044
22100	90	179.632	11079	92.811	0	105.238	0	92.811
22200	90	179.632	11079	93.578	0	106.049	0	93.578
22300	90	179.632	11079	94.346	0	106.86	0	94.346

22400	90	179.632	11079	95.113	0	107.673	0	95.113
22500	90	179.632	11079	95.882	0	108.487	0	95.882
22600	90	179.632	11079	96.65	0	109.302	0	96.65
22700	90	179.632	11079	97.419	0	110.118	0	97.419
22800	90	179.632	11079	98.187	0	110.935	0	98.187
22900	90	179.632	11079	98.957	0	111.752	0	98.957
23000	90	179.632	11079	99.726	0	112.571	0	99.726
23100	90	179.632	11079	100.496	0	113.391	0	100.496
23200	90	179.632	11079	101.265	0	114.212	0	101.265
23300	90	179.632	11079	102.036	0	115.033	0	102.036
23400	90	179.632	11079	102.806	0	115.855	0	102.806
23500	90	179.632	11079	103.576	0	116.679	0	103.576
23600	90	179.632	11079	104.347	0	117.503	0	104.347
23700	90	179.632	11079	105.118	0	118.328	0	105.118
23800	90	179.632	11079	105.889	0	119.153	0	105.889
23900	90	179.632	11079	106.661	0	119.98	0	106.661
23955.458	90	179.632	11079	107.088	0	120.438	0	107.088
24005.458	90	179.632	11079	107.474	0	120.851	0	107.474

Plan Targets	903 H Well Plan

	Measured Depth	Grid Northing	Grid Easting	TVD MSL	Target Shape

Target Name	(ft)	(ft)	(ft)	(ft)	
903H_JRU LTP	23955.21	474946.4	664212.4	7718	LOCATION
903H_JRU BHL	24005.21	474896.4	664212.6	7718	LOCATION
903H_JRU PPP	12173.64	486727.7	664135.3	7718	LOCATION
903H_JRU FTP	11600.46	487716.1	664128.9	7718	LOCATION
903H_JRU SHL	0	487877.8	661878	-3361	RECTANGLE

903H_JRU LTP

903H_JRU BHL

Bias (ft)	Magnitude of Bias (ft)	Semi-major Error (ft)	Semi-minor Error (ft)	Semi-minor Azimuth (°)	Tool Used
0	0	0	0	0	XOM_R2OWSG MWD+IFR1+MS
0	0	0.358	0.179	90	XOM_R2OWSG MWD+IFR1+MS
0	0	0.717	0.538	90	XOM_R2OWSG MWD+IFR1+MS
0	0	1.075	0.896	90	XOM_R2OWSG MWD+IFR1+MS
0	0	1.434	1.255	90	XOM_R2OWSG MWD+IFR1+MS
0	0	1.792	1.613	90	XOM_R2OWSG MWD+IFR1+MS
0	0	2.151	1.972	90	XOM_R2OWSG MWD+IFR1+MS
0	0	2.509	2.33	90	XOM_R2OWSG MWD+IFR1+MS
0	0	2.868	2.689	90	XOM_R2OWSG MWD+IFR1+MS
0	0	3.226	3.047	90	XOM_R2OWSG MWD+IFR1+MS
0	0	3.585	3.405	90	XOM_R2OWSG MWD+IFR1+MS
0	0	3.943	3.764	90	XOM_R2OWSG MWD+IFR1+MS
0	0	4.302	4.122	90	XOM_R2OWSG MWD+IFR1+MS
0	0	4.651	4.472	90.054	XOM_R2OWSG MWD+IFR1+MS
0	0	4.995	4.814	90.171	XOM_R2OWSG MWD+IFR1+MS
0	0	5.342	5.159	90.363	XOM_R2OWSG MWD+IFR1+MS
0	0	5.694	5.507	90.679	XOM_R2OWSG MWD+IFR1+MS

0	0	6.049	5.855	91.146	XOM_R2OWSG MWD+IFR1+MS
0	0	6.409	6.206	91.767	XOM_R2OWSG MWD+IFR1+MS
0	0	6.776	6.557	92.519	XOM_R2OWSG MWD+IFR1+MS
0	0	7.15	6.911	93.354	XOM_R2OWSG MWD+IFR1+MS
0	0	7.532	7.266	94.21	XOM_R2OWSG MWD+IFR1+MS
0	0	7.926	7.622	95.024	XOM_R2OWSG MWD+IFR1+MS
0	0	8.365	8.009	95.792	XOM_R2OWSG MWD+IFR1+MS
0	0	8.749	8.339	96.32	XOM_R2OWSG MWD+IFR1+MS
0	0	9.175	8.698	96.761	XOM_R2OWSG MWD+IFR1+MS
0	0	9.608	9.061	97.119	XOM_R2OWSG MWD+IFR1+MS
0	0	10.047	9.429	97.415	XOM_R2OWSG MWD+IFR1+MS
0	0	10.492	9.801	97.663	XOM_R2OWSG MWD+IFR1+MS
0	0	10.942	10.177	97.874	XOM_R2OWSG MWD+IFR1+MS
0	0	11.395	10.555	98.055	XOM_R2OWSG MWD+IFR1+MS
0	0	11.853	10.936	98.213	XOM_R2OWSG MWD+IFR1+MS
0	0	12.313	11.319	98.351	XOM_R2OWSG MWD+IFR1+MS
0	0	12.777	11.704	98.473	XOM_R2OWSG MWD+IFR1+MS
0	0	13.243	12.092	98.582	XOM_R2OWSG MWD+IFR1+MS
0	0	13.712	12.481	98.679	XOM_R2OWSG MWD+IFR1+MS
0	0	14.182	12.872	98.767	XOM_R2OWSG MWD+IFR1+MS
0	0	14.655	13.265	98.846	XOM_R2OWSG MWD+IFR1+MS

0	0	15.129	13.659	98.918	XOM_R2OWSG MWD+IFR1+MS
0	0	15.605	14.054	98.984	XOM_R2OWSG MWD+IFR1+MS
0	0	16.082	14.45	99.045	XOM_R2OWSG MWD+IFR1+MS
0	0	16.561	14.848	99.1	XOM_R2OWSG MWD+IFR1+MS
0	0	17.041	15.246	99.152	XOM_R2OWSG MWD+IFR1+MS
0	0	17.522	15.646	99.2	XOM_R2OWSG MWD+IFR1+MS
0	0	18.004	16.046	99.244	XOM_R2OWSG MWD+IFR1+MS
0	0	18.487	16.447	99.286	XOM_R2OWSG MWD+IFR1+MS
0	0	18.971	16.849	99.325	XOM_R2OWSG MWD+IFR1+MS
0	0	19.455	17.251	99.361	XOM_R2OWSG MWD+IFR1+MS
0	0	19.941	17.655	99.395	XOM_R2OWSG MWD+IFR1+MS
0	0	20.427	18.058	99.428	XOM_R2OWSG MWD+IFR1+MS
0	0	20.914	18.463	99.458	XOM_R2OWSG MWD+IFR1+MS
0	0	21.401	18.868	99.487	XOM_R2OWSG MWD+IFR1+MS
0	0	21.889	19.273	99.514	XOM_R2OWSG MWD+IFR1+MS
0	0	22.377	19.68	99.54	XOM_R2OWSG MWD+IFR1+MS
0	0	22.866	20.086	99.565	XOM_R2OWSG MWD+IFR1+MS
0	0	23.355	20.493	99.588	XOM_R2OWSG MWD+IFR1+MS
0	0	23.845	20.9	99.611	XOM_R2OWSG MWD+IFR1+MS
0	0	24.335	21.308	99.632	XOM_R2OWSG MWD+IFR1+MS
0	0	24.826	21.717	99.653	XOM_R2OWSG MWD+IFR1+MS

0	0	25.317	22.125	99.672	XOM_R2OWSG MWD+IFR1+MS
0	0	25.808	22.534	99.691	XOM_R2OWSG MWD+IFR1+MS
0	0	26.299	22.943	99.709	XOM_R2OWSG MWD+IFR1+MS
0	0	26.791	23.353	99.727	XOM_R2OWSG MWD+IFR1+MS
0	0	27.283	23.763	99.744	XOM_R2OWSG MWD+IFR1+MS
0	0	27.776	24.174	99.76	XOM_R2OWSG MWD+IFR1+MS
0	0	28.268	24.584	99.776	XOM_R2OWSG MWD+IFR1+MS
0	0	28.761	24.995	99.791	XOM_R2OWSG MWD+IFR1+MS
0	0	29.255	25.406	99.806	XOM_R2OWSG MWD+IFR1+MS
0	0	29.748	25.818	99.82	XOM_R2OWSG MWD+IFR1+MS
0	0	30.241	26.23	99.834	XOM_R2OWSG MWD+IFR1+MS
0	0	30.735	26.642	99.848	XOM_R2OWSG MWD+IFR1+MS
0	0	31.229	27.054	99.861	XOM_R2OWSG MWD+IFR1+MS
0	0	31.569	27.338	99.87	XOM_R2OWSG MWD+IFR1+MS
0	0	31.722	27.466	99.874	XOM_R2OWSG MWD+IFR1+MS
0	0	32.199	27.874	99.896	XOM_R2OWSG MWD+IFR1+MS
0	0	32.654	28.275	99.929	XOM_R2OWSG MWD+IFR1+MS
0	0	33.088	28.669	99.971	XOM_R2OWSG MWD+IFR1+MS
0	0	33.5	29.055	100.021	XOM_R2OWSG MWD+IFR1+MS
0	0	33.893	29.432	100.076	XOM_R2OWSG MWD+IFR1+MS
0	0	34.265	29.798	100.134	XOM_R2OWSG MWD+IFR1+MS

0	0	34.619	30.154	100.194	XOM_R2OWSG MWD+IFR1+MS
0	0	34.954	30.497	100.254	XOM_R2OWSG MWD+IFR1+MS
0	0	35.271	30.828	100.312	XOM_R2OWSG MWD+IFR1+MS
0	0	35.573	31.146	100.366	XOM_R2OWSG MWD+IFR1+MS
0	0	35.793	31.377	100.363	XOM_R2OWSG MWD+IFR1+MS
0	0	35.857	31.444	100.35	XOM_R2OWSG MWD+IFR1+MS
0	0	36.138	31.736	100.293	XOM_R2OWSG MWD+IFR1+MS
0	0	36.419	32.029	100.236	XOM_R2OWSG MWD+IFR1+MS
0	0	36.702	32.324	100.18	XOM_R2OWSG MWD+IFR1+MS
0	0	36.986	32.62	100.125	XOM_R2OWSG MWD+IFR1+MS
0	0	37.272	32.917	100.07	XOM_R2OWSG MWD+IFR1+MS
0	0	37.559	33.215	100.016	XOM_R2OWSG MWD+IFR1+MS
0	0	37.847	33.514	99.963	XOM_R2OWSG MWD+IFR1+MS
0	0	38.136	33.815	99.91	XOM_R2OWSG MWD+IFR1+MS
0	0	38.426	34.116	99.857	XOM_R2OWSG MWD+IFR1+MS
0	0	38.718	34.419	99.806	XOM_R2OWSG MWD+IFR1+MS
0	0	39.01	34.723	99.755	XOM_R2OWSG MWD+IFR1+MS
0	0	39.304	35.028	99.704	XOM_R2OWSG MWD+IFR1+MS
0	0	39.599	35.333	99.654	XOM_R2OWSG MWD+IFR1+MS
0	0	39.895	35.64	99.605	XOM_R2OWSG MWD+IFR1+MS
0	0	40.192	35.948	99.556	XOM_R2OWSG MWD+IFR1+MS

0	0	40.49	36.257	99.507	XOM_R2OWSG MWD+IFR1+MS
0	0	40.788	36.566	99.46	XOM_R2OWSG MWD+IFR1+MS
0	0	41.088	36.877	99.412	XOM_R2OWSG MWD+IFR1+MS
0	0	41.389	37.188	99.365	XOM_R2OWSG MWD+IFR1+MS
0	0	41.691	37.5	99.319	XOM_R2OWSG MWD+IFR1+MS
0	0	41.993	37.813	99.273	XOM_R2OWSG MWD+IFR1+MS
0	0	42.297	38.127	99.228	XOM_R2OWSG MWD+IFR1+MS
0	0	42.601	38.441	99.183	XOM_R2OWSG MWD+IFR1+MS
0	0	42.906	38.756	99.138	XOM_R2OWSG MWD+IFR1+MS
0	0	43.141	38.999	99.105	XOM_R2OWSG MWD+IFR1+MS
0	0	43.209	39.071	99.1	XOM_R2OWSG MWD+IFR1+MS
0	0	43.487	39.375	99.087	XOM_R2OWSG MWD+IFR1+MS
0	0	43.757	39.676	99.062	XOM_R2OWSG MWD+IFR1+MS
0	0	44.012	39.968	99.066	XOM_R2OWSG MWD+IFR1+MS
0	0	44.245	40.247	99.156	XOM_R2OWSG MWD+IFR1+MS
0	0	44.452	40.51	99.399	XOM_R2OWSG MWD+IFR1+MS
0	0	44.631	40.753	99.866	XOM_R2OWSG MWD+IFR1+MS
0	0	44.781	40.973	100.63	XOM_R2OWSG MWD+IFR1+MS
0	0	44.906	41.165	101.753	XOM_R2OWSG MWD+IFR1+MS
0	0	45.012	41.325	103.274	XOM_R2OWSG MWD+IFR1+MS
0	0	45.106	41.447	105.181	XOM_R2OWSG MWD+IFR1+MS

0	0	45.2	41.525	107.433	XOM_R2OWSG MWD+IFR1+MS
0	0	45.3	41.578	109.733	XOM_R2OWSG MWD+IFR1+MS
0	0	45.416	41.636	112.086	XOM_R2OWSG MWD+IFR1+MS
0	0	45.546	41.696	114.441	XOM_R2OWSG MWD+IFR1+MS
0	0	45.692	41.758	116.789	XOM_R2OWSG MWD+IFR1+MS
0	0	45.854	41.821	119.118	XOM_R2OWSG MWD+IFR1+MS
0	0	46.033	41.884	121.416	XOM_R2OWSG MWD+IFR1+MS
0	0	46.228	41.947	123.67	XOM_R2OWSG MWD+IFR1+MS
0	0	46.441	42.01	125.87	XOM_R2OWSG MWD+IFR1+MS
0	0	46.67	42.071	128.004	XOM_R2OWSG MWD+IFR1+MS
0	0	46.917	42.13	130.064	XOM_R2OWSG MWD+IFR1+MS
0	0	47.181	42.188	132.044	XOM_R2OWSG MWD+IFR1+MS
0	0	47.462	42.244	133.937	XOM_R2OWSG MWD+IFR1+MS
0	0	47.76	42.297	-44.258	XOM_R2OWSG MWD+IFR1+MS
0	0	48.075	42.35	-42.543	XOM_R2OWSG MWD+IFR1+MS
0	0	48.405	42.4	-40.918	XOM_R2OWSG MWD+IFR1+MS
0	0	48.751	42.448	-39.38	XOM_R2OWSG MWD+IFR1+MS
0	0	49.113	42.495	-37.927	XOM_R2OWSG MWD+IFR1+MS
0	0	49.489	42.54	-36.557	XOM_R2OWSG MWD+IFR1+MS
0	0	49.879	42.584	-35.265	XOM_R2OWSG MWD+IFR1+MS
0	0	50.284	42.627	-34.047	XOM_R2OWSG MWD+IFR1+MS

0	0	50.702	42.668	-32.899	XOM_R2OWSG MWD+IFR1+MS
0	0	51.133	42.709	-31.816	XOM_R2OWSG MWD+IFR1+MS
0	0	51.577	42.748	-30.795	XOM_R2OWSG MWD+IFR1+MS
0	0	52.033	42.787	-29.832	XOM_R2OWSG MWD+IFR1+MS
0	0	52.501	42.825	-28.922	XOM_R2OWSG MWD+IFR1+MS
0	0	52.98	42.863	-28.063	XOM_R2OWSG MWD+IFR1+MS
0	0	53.47	42.9	-27.25	XOM_R2OWSG MWD+IFR1+MS
0	0	53.971	42.937	-26.48	XOM_R2OWSG MWD+IFR1+MS
0	0	54.482	42.974	-25.751	XOM_R2OWSG MWD+IFR1+MS
0	0	55.004	43.01	-25.059	XOM_R2OWSG MWD+IFR1+MS
0	0	55.534	43.046	-24.403	XOM_R2OWSG MWD+IFR1+MS
0	0	56.075	43.082	-23.779	XOM_R2OWSG MWD+IFR1+MS
0	0	56.624	43.118	-23.186	XOM_R2OWSG MWD+IFR1+MS
0	0	57.182	43.154	-22.621	XOM_R2OWSG MWD+IFR1+MS
0	0	57.748	43.19	-22.082	XOM_R2OWSG MWD+IFR1+MS
0	0	58.323	43.226	-21.569	XOM_R2OWSG MWD+IFR1+MS
0	0	58.905	43.263	-21.078	XOM_R2OWSG MWD+IFR1+MS
0	0	59.495	43.299	-20.61	XOM_R2OWSG MWD+IFR1+MS
0	0	60.093	43.336	-20.162	XOM_R2OWSG MWD+IFR1+MS
0	0	60.697	43.373	-19.733	XOM_R2OWSG MWD+IFR1+MS
0	0	61.309	43.41	-19.322	XOM_R2OWSG MWD+IFR1+MS

0	0	61.927	43.447	-18.928	XOM_R2OWSG MWD+IFR1+MS
0	0	62.552	43.485	-18.55	XOM_R2OWSG MWD+IFR1+MS
0	0	63.183	43.523	-18.187	XOM_R2OWSG MWD+IFR1+MS
0	0	63.82	43.561	-17.838	XOM_R2OWSG MWD+IFR1+MS
0	0	64.463	43.6	-17.502	XOM_R2OWSG MWD+IFR1+MS
0	0	65.112	43.639	-17.179	XOM_R2OWSG MWD+IFR1+MS
0	0	65.766	43.678	-16.868	XOM_R2OWSG MWD+IFR1+MS
0	0	66.425	43.718	-16.568	XOM_R2OWSG MWD+IFR1+MS
0	0	67.09	43.758	-16.279	XOM_R2OWSG MWD+IFR1+MS
0	0	67.76	43.798	-16	XOM_R2OWSG MWD+IFR1+MS
0	0	68.435	43.839	-15.731	XOM_R2OWSG MWD+IFR1+MS
0	0	69.114	43.881	-15.471	XOM_R2OWSG MWD+IFR1+MS
0	0	69.798	43.922	-15.219	XOM_R2OWSG MWD+IFR1+MS
0	0	70.486	43.965	-14.976	XOM_R2OWSG MWD+IFR1+MS
0	0	71.179	44.007	-14.741	XOM_R2OWSG MWD+IFR1+MS
0	0	71.876	44.05	-14.513	XOM_R2OWSG MWD+IFR1+MS
0	0	72.577	44.094	-14.292	XOM_R2OWSG MWD+IFR1+MS
0	0	73.282	44.138	-14.078	XOM_R2OWSG MWD+IFR1+MS
0	0	73.991	44.182	-13.87	XOM_R2OWSG MWD+IFR1+MS
0	0	74.703	44.227	-13.669	XOM_R2OWSG MWD+IFR1+MS
0	0	75.419	44.273	-13.474	XOM_R2OWSG MWD+IFR1+MS

0	0	76.139	44.319	-13.284	XOM_R2OWSG MWD+IFR1+MS
0	0	76.862	44.365	-13.1	XOM_R2OWSG MWD+IFR1+MS
0	0	77.588	44.412	-12.921	XOM_R2OWSG MWD+IFR1+MS
0	0	78.317	44.459	-12.747	XOM_R2OWSG MWD+IFR1+MS
0	0	79.05	44.507	-12.578	XOM_R2OWSG MWD+IFR1+MS
0	0	79.786	44.555	-12.413	XOM_R2OWSG MWD+IFR1+MS
0	0	80.524	44.604	-12.253	XOM_R2OWSG MWD+IFR1+MS
0	0	81.266	44.653	-12.097	XOM_R2OWSG MWD+IFR1+MS
0	0	82.01	44.703	-11.945	XOM_R2OWSG MWD+IFR1+MS
0	0	82.757	44.753	-11.797	XOM_R2OWSG MWD+IFR1+MS
0	0	83.506	44.803	-11.653	XOM_R2OWSG MWD+IFR1+MS
0	0	84.258	44.855	-11.512	XOM_R2OWSG MWD+IFR1+MS
0	0	85.013	44.906	-11.375	XOM_R2OWSG MWD+IFR1+MS
0	0	85.77	44.958	-11.241	XOM_R2OWSG MWD+IFR1+MS
0	0	86.529	45.011	-11.11	XOM_R2OWSG MWD+IFR1+MS
0	0	87.291	45.064	-10.983	XOM_R2OWSG MWD+IFR1+MS
0	0	88.055	45.118	-10.858	XOM_R2OWSG MWD+IFR1+MS
0	0	88.821	45.172	-10.737	XOM_R2OWSG MWD+IFR1+MS
0	0	89.589	45.226	-10.618	XOM_R2OWSG MWD+IFR1+MS
0	0	90.359	45.281	-10.502	XOM_R2OWSG MWD+IFR1+MS
0	0	91.132	45.337	-10.388	XOM_R2OWSG MWD+IFR1+MS

0	0	91.906	45.393	-10.277	XOM_R2OWSG MWD+IFR1+MS
0	0	92.682	45.449	-10.169	XOM_R2OWSG MWD+IFR1+MS
0	0	93.46	45.506	-10.063	XOM_R2OWSG MWD+IFR1+MS
0	0	94.24	45.564	-9.959	XOM_R2OWSG MWD+IFR1+MS
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0	0	98.955	45.919	-9.38	XOM_R2OWSG MWD+IFR1+MS
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0	0	100.539	46.041	-9.202	XOM_R2OWSG MWD+IFR1+MS
0	0	101.333	46.102	-9.116	XOM_R2OWSG MWD+IFR1+MS
0	0	102.129	46.165	-9.031	XOM_R2OWSG MWD+IFR1+MS
0	0	102.926	46.227	-8.948	XOM_R2OWSG MWD+IFR1+MS
0	0	103.725	46.29	-8.867	XOM_R2OWSG MWD+IFR1+MS
0	0	104.524	46.354	-8.787	XOM_R2OWSG MWD+IFR1+MS
0	0	105.325	46.418	-8.709	XOM_R2OWSG MWD+IFR1+MS
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0	0	106.931	46.548	-8.556	XOM_R2OWSG MWD+IFR1+MS
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0	0	108.542	46.679	-8.41	XOM_R2OWSG MWD+IFR1+MS
0	0	109.349	46.746	-8.338	XOM_R2OWSG MWD+IFR1+MS
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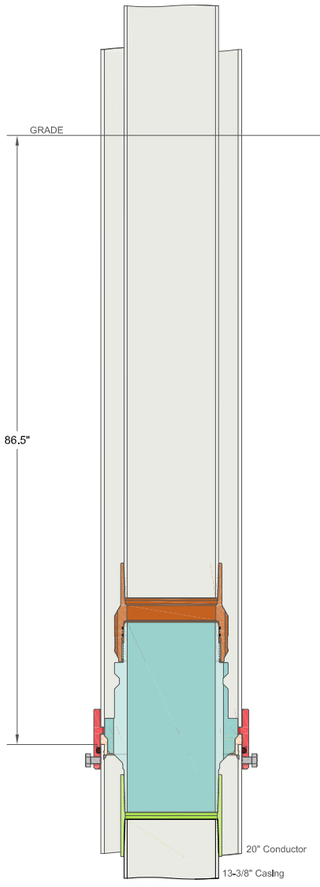
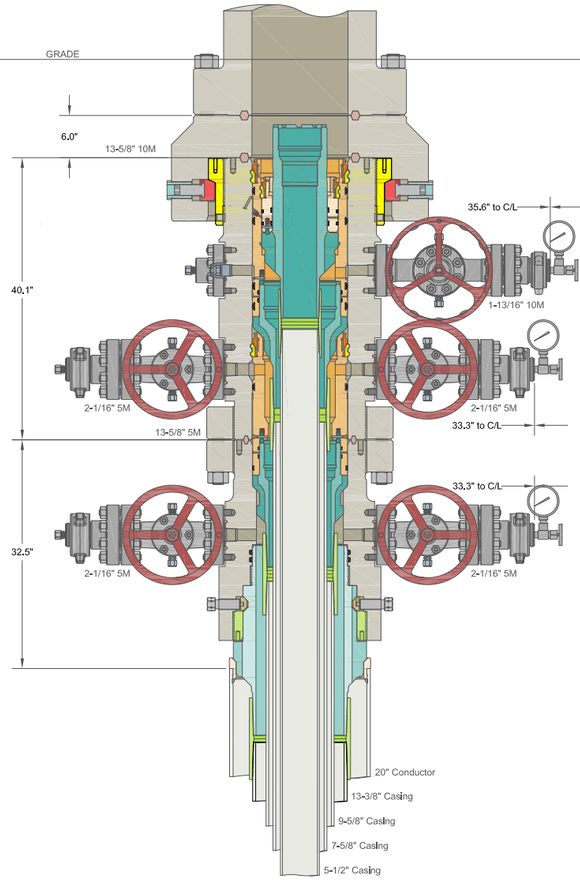
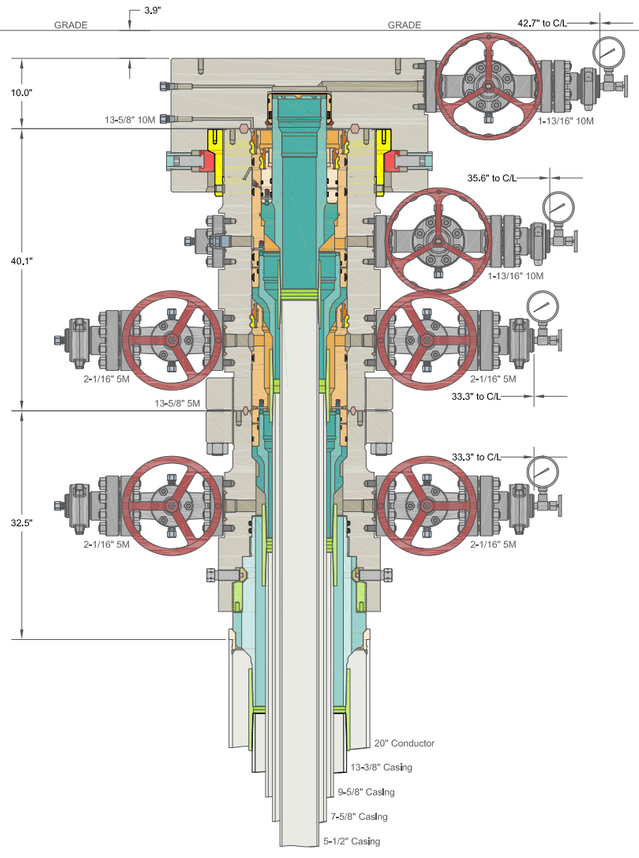
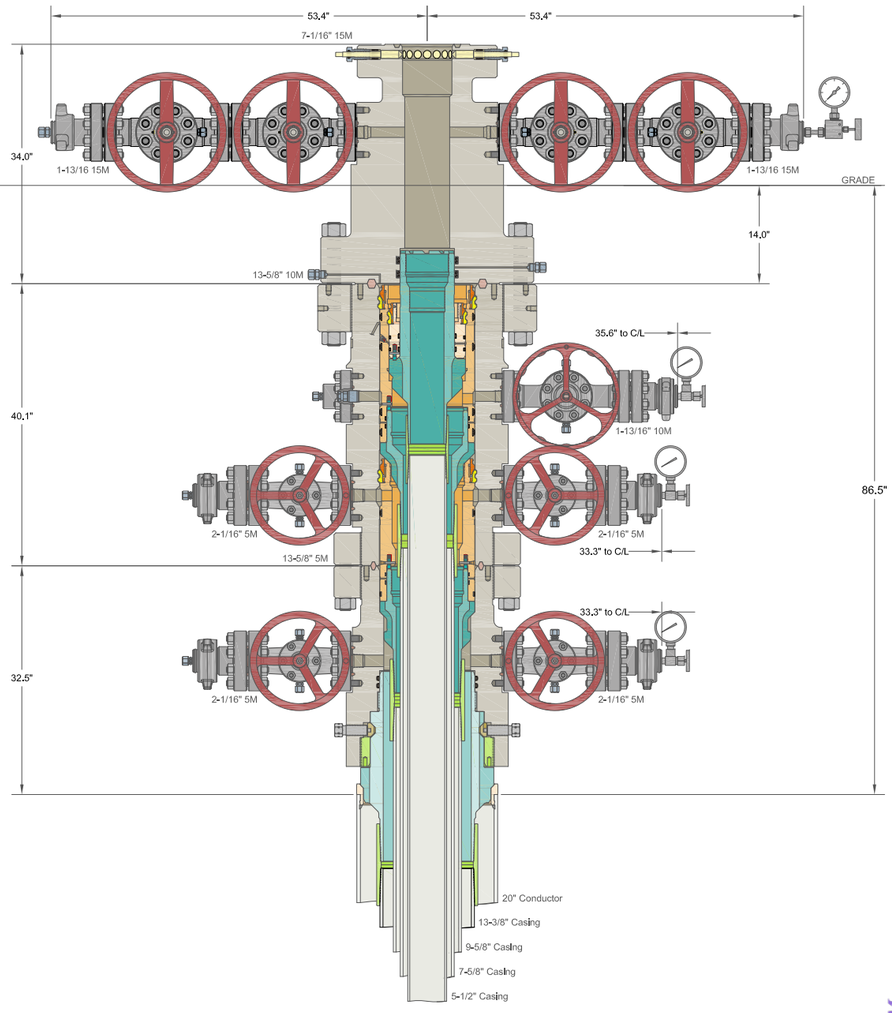
0	0	121.213	47.763	-7.426	XOM_R2OWSG MWD+IFR1+MS
0	0	121.624	47.8	-7.398	XOM_R2OWSG MWD+IFR1+MS









ALL DIMENSIONS APPROXIMATE

CACTUS WELLHEAD LLC

(20") x 13-3/8" x 9-5/8" x 7-5/8" x 5-1/2" MBU-4T-CFL-R-DBLO
With 13-5/8" 10M x 7-1/16" 15M CTH-DBLHPS-SB Tubing Head
And Drilling & Skid Configurations

XTO ENERGY INC
DELAWARE BASIN

DRAWN	VJK	31MAR22
APPRV		

DRAWING NO. SDT-3301

Cement Variance Request

XTO requests to pump a two stage cement job on the 7-5/8” intermediate casing string with the first stage being pumped conventionally with the calculated top of cement at the Brushy Canyon (6452') and the second stage performed as a bradenhead squeeze with planned cement from the Brushy Canyon to surface. If cement is not visually confirmed to circulate to surface, the final cement top after the second stage job will be verified by Echo-meter. If necessary, a top out consisting of 1,500 sack of Class C cement + 3% Salt + 1% PreMag-M + 6% Bentonite Gel (2.30 yld, 12.91 ppg) will be executed as a contingency. If cement is still unable to circulate to surface, another Echo-meter run will be performed for cement top verification.

XTO will include the Echo-meter verified fluid top and the volume of displacement fluid above the cement slurry in the annulus in all post-drill sundries on wells utilizing this cement program.

XTO will report to the BLM the volume of fluid (limited to 5 bbls) used to flush intermediate casing valves following backside cementing procedures.

XTO requests to pump an Optional Lead if well conditions dictate in an attempt to bring cement to surface on the first stage. If cement is brought to surface, the BLM will be notified and the second stage bradenhead squeeze and subsequent TOC verification will be negated.

In the event cement is not circulated to surface on the first stage, whether intentionally or unintentionally, XTO requests the option to conduct the bradenhead squeeze and TOC verification offline as per standard approval from BLM when unplanned remediation is needed and batch drilling is approved. In the event the bradenhead is conducted, we will ensure first stage cement job is cemented properly and the well is static with floats holding and no pressure on the csg annulus as with all other casing strings where batch drilling operations occur before moving off the rig. The TA cap will also be installed per GE procedure and pressure inside the casing will be monitored via the valve on the TA cap as per standard batch drilling ops.

Subject: Request for a Variance Allowing break Testing of the Blowout Preventer Equipment (BOPE)

XTO Energy requests a variance to ONLY test broken pressure seals on the BOPE and function test BOP when skidding a drilling rig between multiple wells on a pad.

Background

Onshore Oil and Gas Order (OOGO) No. 2, Drilling Operations, Sections III.A.2.i.iv.B states that the BOP test must be performed whenever any seal subject to test pressure is broken. The current interpretation of the Bureau of Land Management (BLM) requires a complete BOP test and not just a test of the affected component. OOGO No. 2, Section I.D.2 states, "Some situation may exist either on a well-by-well basis or field-wide basis whereby it is commonly accepted practice to vary a particular minimum standard(s) established in this order. This situation can be resolved by requesting a variance…". XTO Energy feels the break testing the BOPE is such a situation. Therefore, as per OOGO No. 2, Section IV., XTO Energy submits this request for the variance.

Supporting Documentation

OOGO No. 2 became effective on December 19, 1988 and has remained the standard for regulating BLM onshore drilling operations for over 30 years. During this time there have been significant changes in drilling technology. BLM continues to use the variance request process to allow for the use of modern technology and acceptable engineering practices that have arisen since OOGO No. 2 was originally released. The XTO Energy drilling rig fleet has many modern upgrades that allow the intact BOP stack to be moved between well slots on a multi-well pad, as well as, wellhead designs that incorporate quick connects facilitating release of the BOP from the wellhead without breaking any BOP stack components apart. These technologies have been used extensively offshore, and other regulators, API, and many operators around the world have endorsed break testing as safe and reliable.

Figure 1: Winch System attached to BOP Stack

Figure 2: BOP Winch System

American Petroleum Institute (API) standards, specification and recommended practices are considered the industry standard and are consistently utilized and referenced by the industry. OOGO No. 2 recognizes API recommended Practices (RP) 53 in its original development. API Standard 53, *Well Control Equipment Systems for Drilling Wells* (Fifth Edition, December 2018, Annex C, Table C.4) recognizes break testing as an acceptable practice. Specifically, API Standard 53, Section 5.3.7.1 states "A pressure test of the pressure containing component shall be performed following the disconnection or repair, limited to the affected component." See Table C.4 below for reference.

Table C.4—Initial Pressure Testing, Surface BOP Stacks

Component to be Pressure Tested	Pressure Test—Low Pressure[ac] psig (MPa)	Pressure Test—High Pressure[ac]	
		Change Out of Component, Elastomer, or Ring Gasket	No Change Out of Component, Elastomer, or Ring Gasket
Annular preventer[b]	250 to 350 (1.72 to 2.41)	RWP of annular preventer	MASP or 70% annular RWP, whichever is lower.
Fixed pipe, variable bore, blind, and BSR preventers[bd]	250 to 350 (1.72 to 2.41)	RWP of ram preventer or wellhead system, whichever is lower	ITP
Choke and kill line and BOP side outlet valves below ram preventers (both sides)	250 to 350 (1.72 to 2.41)	RWP of side outlet valve or wellhead system, whichever is lower	ITP
Choke manifold—upstream of chokes[e]	250 to 350 (1.72 to 2.41)	RWP of ram preventers or wellhead system, whichever is lower	ITP
Choke manifold—downstream of chokes[e]	250 to 350 (1.72 to 2.41)	RWP of valve(s), line(s), or MASP for the well program, whichever is lower	
Kelly, kelly valves, drill pipe safety valves, IBOPs	250 to 350 (1.72 to 2.41)	MASP for the well program	

[a] Pressure test evaluation periods shall be a minimum of five minutes.
No visible leaks.
The pressure shall remain stable during the evaluation period. The pressure shall not decrease below the intended test pressure.

[b] Annular(s) and VBR(s) shall be pressure tested on the largest and smallest OD drill pipe to be used in well program.

[c] For pad drilling operations, moving from one wellhead to another within the 21 days, pressure testing is required for pressure-containing and pressure-controlling connections when the integrity of a pressure seal is broken.

[d] For surface offshore operations, the ram BOPs shall be pressure tested with the ram locks engaged and the closing and locking pressure vented during the initial test. For land operations, the ram BOPs shall be pressure tested with the ram locks engaged and the closing and locking pressure vented at commissioning and annually.

[e] Adjustable chokes are not required to be full sealing devices. Pressure testing against a closed choke is not required.

The Bureau of Safety and Environmental Enforcement (BSEE), Department of Interior, has also utilized the API standards, specification and best practices in the development of its offshore oil and gas regulations and incorporates them by reference within its regulations.

Break testing has been approved by the BLM in the past with other operators based on the detailed information provided in this document.

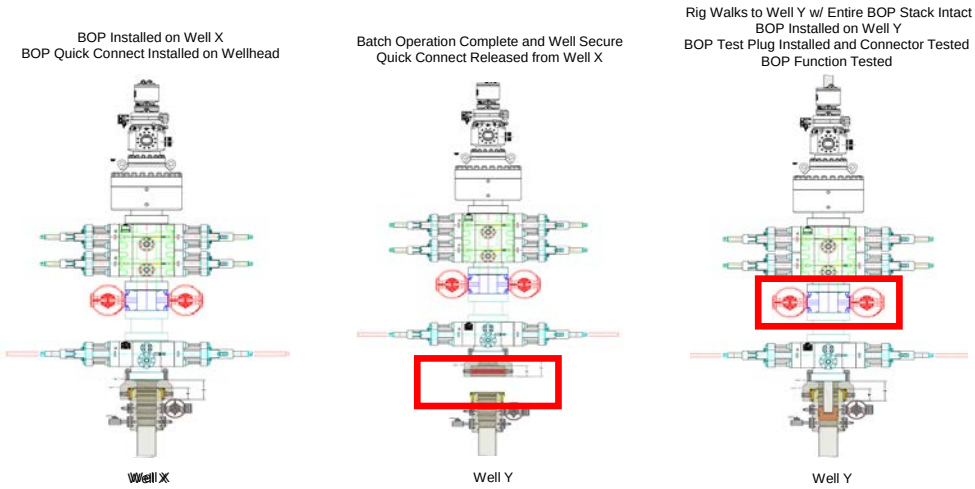
XTO Energy feels break testing and our current procedures meet the intent of OOGO No. 2 and often exceed it. There has been no evidence that break testing results in more components failing than seen on full BOP tests. XTO Energy's internal standards requires complete BOPE tests more often than that of OOGO No. 2 (Every 21 days). In addition to function testing the annular, pipe rams and blind rams after each BOP nipple up, XTO Energy performs a choke drill with the rig crew prior to drilling out every casing shoe. This is additional training for the rig crew that exceeds the requirements of the OOGO No.2.

Procedures

1. XTO Energy will use this document for our break testing plan for New Mexico Delaware basin. The summary below will be referenced in the APD or Sundry Notice and receive approval prior to implementing this variance.
2. XTO Energy will perform BOP break testing on multi-wells pads where multiple intermediate sections can be drilled and cased within the 21-day BOP test window.
    a. A full BOP test will be conducted on the first well on the pad.
    b. The first intermediate hole section drilled on the pad will be the deepest. All of the remaining hole sections will be the same depth or shallower.
        i. Our Lower WC targets set the intermediate casing shoe no deeper than the Wolfcamp B.
        ii. Our Upper WC targets set the intermediate casing shoe shallower than the Wolfcamp B.
    c. A Full BOP test will be required if the intermediate hole section being drilled has a MASP over 5M.
    d. A full BOP test will be required prior to drilling any production hole.
3. After performing a complete BOP test on the first well, the intermediate hole section will be drilled and cased, two breaks would be made on the BOP equipment.
    a. Between the HCV valve and choke line connection
    b. Between the BOP quick connect and the wellhead
4. The BOP is then lifted and removed from the wellhead by a hydraulic system.
5. After skidding to the next well, the BOP is moved to the wellhead by the same hydraulic system and installed.
6. The connections mentioned in 3a and 3b will then be reconnected.
7. Install test plug into the wellhead using test joint or drill pipe.
8. A shell test is performed against the upper pipe rams testing the two breaks.
9. The shell test will consist of a 250 psi low test and a high test to the value submitted in the APD or Sundry (e.g. 5,000 psi or 10,000psi).
10. Function test will be performed on the following components: lower pipe rams, blind rams, and annular.

11. For a multi-well pad the same two breaks on the BOP would be made and on the next wells and steps 4 through 10 would be repeated.
12. A second break test would only be done if the intermediate hole section being drilled could not be completed within the 21 day BOP test window.

Note: Picture below highlights BOP components that will be tested during batch operations



Summary

A variance is requested to **ONLY** test broken pressure seals on the BOP equipment when moving from wellhead to wellhead which is in compliance with API Standard 53. API Standard 53 states, that for pad drilling operation, moving from one wellhead to another within 21 days, pressure testing is required for pressure-containing and pressure-controlling connections when the integrity of a pressure seal is broken.

The BOP will be secured by a hydraulic carrier or cradle. The BLM will be contacted if a Well Control event occurs prior to the commencement of a BOPE Break Testing operation.

Based on discussions with the BLM on February 27th 2020 and the supporting documentation submitted to the BLM, we will request permission to ONLY retest broken pressure seals if the following conditions are met:

1. After a full BOP test is conducted on the first well on the pad.

2. The first intermediate hole section drilled on the pad will be the deepest. All of the remaining hole sections will be the same depth or shallower.

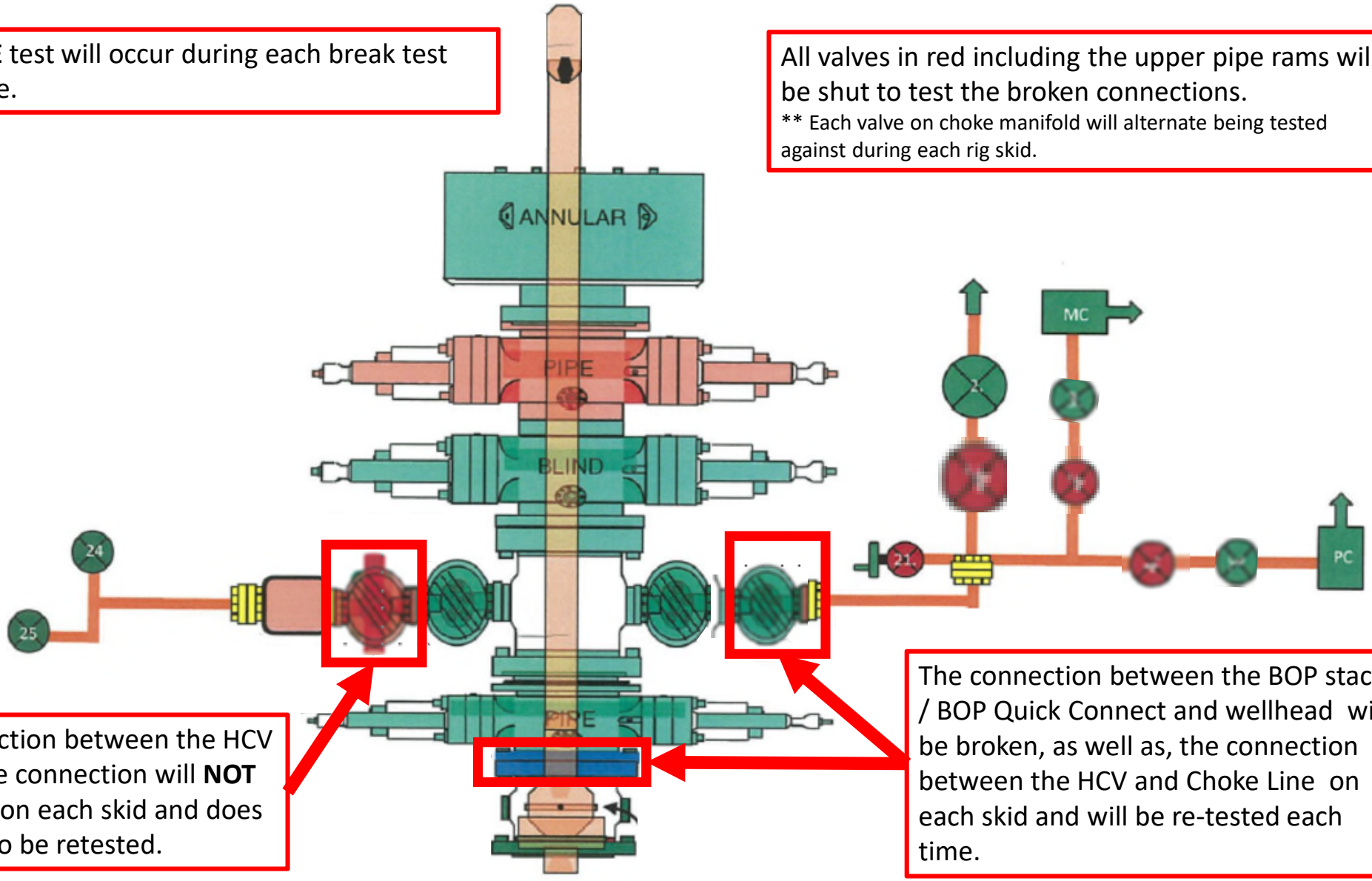
3. Full BOP test will be required if the intermediate hole section being drilled has a MASP over 5M.

4. Full BOP test will be required prior to drilling the production hole.

Only **ONE** test will occur during each break test procedure.

All valves in red including the upper pipe rams will be shut to test the broken connections.

** Each valve on choke manifold will alternate being tested against during each rig skid.



The connection between the HCV and kill line connection will **NOT** be broken on each skid and does not need to be retested.

The connection between the BOP stack / BOP Quick Connect and wellhead will be broken, as well as, the connection between the HCV and Choke Line on each skid and will be re-tested each time.

XTO Permian Operating, LLC Offline Cementing Variance Request

XTO requests the option to cement the surface and intermediate casing strings offline as a prudent batch drilling efficiency of acreage development.

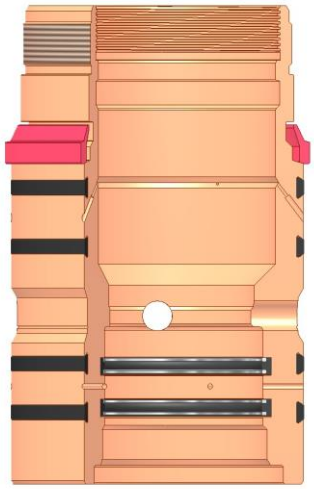
1. Cement Program

No changes to the cement program will take place for offline cementing.

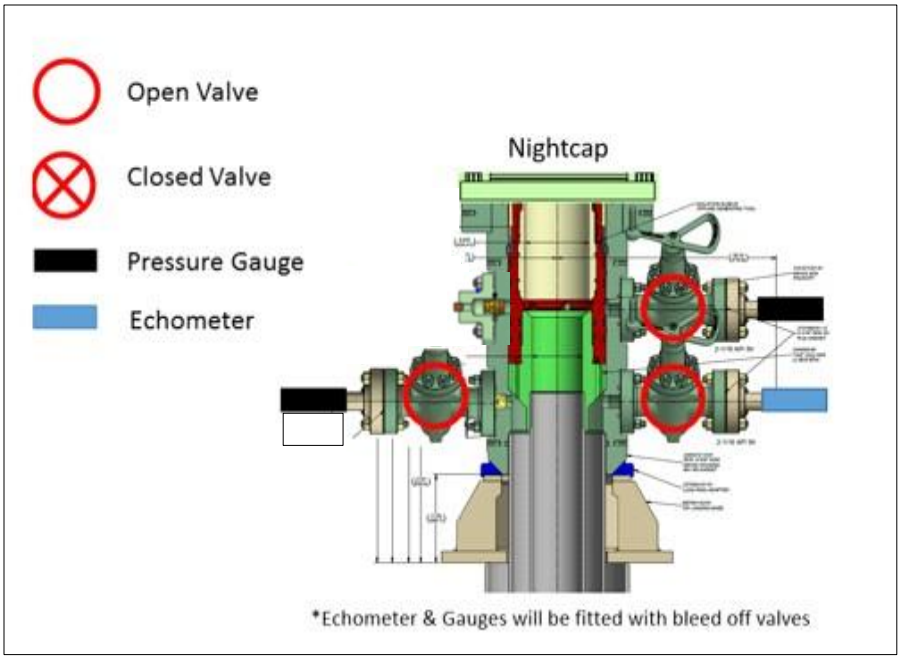
2. Offline Cementing Procedure

The operational sequence will be as follows. If a well control event occurs, the BLM will be contacted for approval prior to conducting offline cementing operations.

1. Run casing as per normal operations. While running casing, conduct negative pressure test and confirm integrity of the float equipment (float collar and shoe)
2. Land casing with mandrel
3. Fill pipe with kill weight fluid, do not circulate through floats and confirm well is static
4. Set annular packoff shown below and pressure test to confirm integrity of the seal. Pressure ratings of wellhead components and valves is 5,000 psi.
5. After confirmation of both annular barriers and internal barriers, nipple down BOP and install cap flange.
    a. If any barrier fails to test, the BOP stack will not be nippled down until after the cement job is completed with cement 500ft above the highest formation capable of flow with kill weight mud above or after it has achieved 50-psi compressive strength if kill weight fluid cannot be verified.



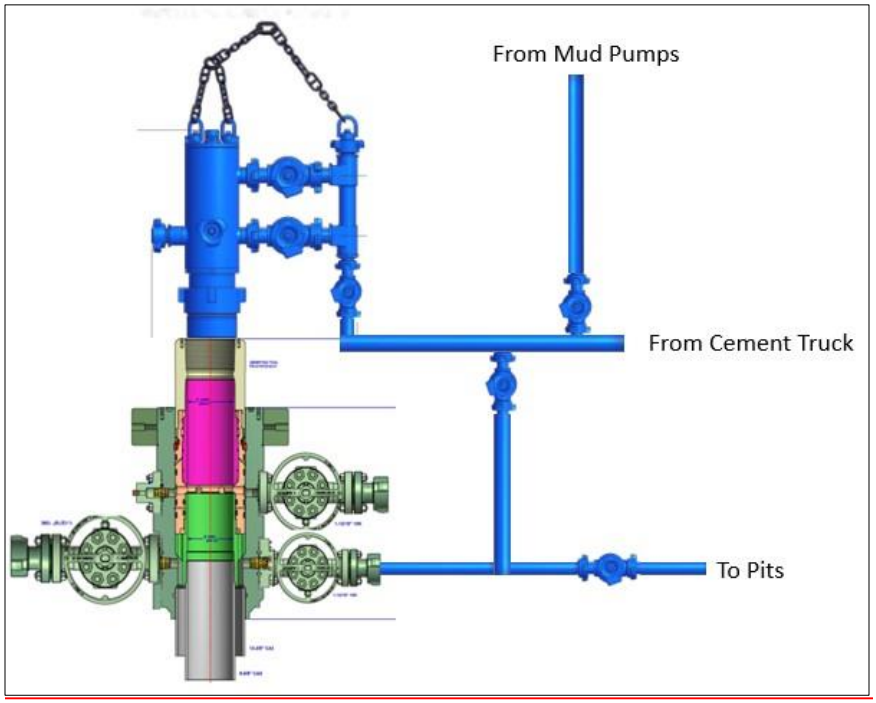
Annular packoff with both external and internal seals



Wellhead diagram during skidding operations

6. Skid rig to next well on pad.
7. Confirm well is static before removing cap flange, flange will not be removed and offline cementing operations will not commence until well is under control. If well is not static, casing outlet valves will provide access to both the casing ID and annulus. Rig or third party pump truck will kill well prior to cementing or nippling up for further remediation.
    a. Well Control Plan
        i. The Drillers Method will be the primary well control method to regain control of the wellbore prior to cementing, if wellbore conditions do not permit the drillers method other methods of well control may be used
        ii. Rig pumps or a 3rd party pump will be tied into the upper casing valve to pump down the casing ID
        iii. A high pressure return line will be rigged up to lower casing valve and run to choke manifold to control annular pressure
        iv. Once influx is circulated out of the hole, kill weight mud will be circulated
        v. Well will be confirmed static
        vi. Once confirmed static, cap flange will be removed to allow for offline cementing operations to commence
8. Install offline cement tool
9. Rig up cement equipment

XTO Permian Operating, LLC Offline Cementing Variance Request



Wellhead diagram during offline cementing operations

10. Circulate bottoms up with cement truck
    a. If gas is present on bottoms up, well will be shut in and returns rerouted through gas buster to handle entrained gas
    b. Max anticipated time before circulating with cement truck is 6 hrs
11. Perform cement job taking returns from the annulus wellhead valve
12. Confirm well is static and floats are holding after cement job
13. Remove cement equipment, offline cement tools and install night cap with pressure gauge for monitoring.

XTO respectfully requests approval to utilize a spudder rig to pre-set surface casing.

Description of Operations:

1. Spudder rig will move in to drill the surface hole and pre-set surface casing on the well.
    a. After drilling the surface hole section, the spudder rig will run casing and cement following all of the applicable rules and regulations (OnShore Order 2, all COAs and NMOCD regulations).
    b. The spudder rig will utilize fresh water-based mud to drill the surface hole to TD. Solids control will be handled entirely on a closed loop basis. No earth pits will be used.
2. The wellhead will be installed and tested as soon as the surface casing is cut off and WOC time has been reached.
3. A blind flange at the same pressure rating as the wellhead will be installed to seal the wellbore. Pressure will be monitored with needle valves installed on two wing valves.
    a. A means for intervention will be maintained while the drilling rig is not over the well.
4. Spudder rig operations are expected to take 2-3 days per well on the pad.
5. The BLM will be contacted and notified 24 hours prior to commencing spudder rig operations.
6. Drilling Operations will begin with a larger rig and a BOP stack equal to or greater than the pressure rating that was permitted will be nippled up and tested on the wellhead before drilling operations resume on each well.
    a. The larger rig will move back onto the location within 180 days from the point at which the wells are secured and the spudder rig is moved off location.
    b. The BLM will be notified 24 hours before the larger rig moves back on the pre-set locations
7. XTO will have supervision on the rig to ensure compliance with all BLM and NMOCD regulations and to oversee operations.
8. Once the rig is removed, XTO will secure the wellhead area by placing a guard rail around the cellar area.

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Operator: XTO PERMIAN OPERATING LLC. 6401 HOLIDAY HILL ROAD MIDLAND, TX 79707	OGRID: 373075
	Action Number: 281516
	Action Type: [C-103] NOI Change of Plans (C-103A)

CONDITIONS

Created By	Condition	Condition Date
ward.rikala	All original COA's still apply. Additionally, if cement does not circulate during cementing a string, then a CBL is required for that string.	11/21/2023